THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

THE COST OF CONSTRUCTING nuclear power stations between now and 1965 *is* £742*m. and of conventional stations,* £316*m., Lord Mills has said.* *p.* 680

INVESTMENT by private industry is likely to remain at its existing high level in 1957, *and investment in the basic services of fuel, power and transport, including new roads, is likely to rise, states the current* '*Economic Survey*.' *p.* 681

ABSENCE OF TEA BREAKS and the right to strike were features of building in Russia mentioned at a London Foremen's discussion. *p.* 682

THE VIEW that '*it would be unwise and unnecessarily confusing to builders for the quantity surveying profession as a whole to undertake any large-scale change in the layout of bills of quantities at present*,' *is expressed in an RICS report.* *p.* 684

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COST CONTROL

DURING the past eighteen months much has been said and written, not least in the correspondence columns of this newspaper, upon the subject of Elemental Bills and their implication for the architect, quantity surveyor and builder; so much in fact that the main issues may have become obscured.

The Cost Research Panel set up in June 1956 by the RICS fortunately have not lost sight of these main issues, and their exhibition concerned with cost research and cost planning, which is having its showing at the Brixton School of Building this week, prompts a restatement of the aims and problems that the industry has to face in these times of rapid advancement.

Real knowledge of the factors governing the costs of building must be possessed by all members of the building team, but most of all must this knowledge be available to the architect at the design stage. It is his onerous task to have Cost Control of the project from the preliminary and drawing board stages. To design in these conditions he must have a Cost Plan so that he may evaluate a new structural technique—perhaps almost devoid of site labour—against a conventional structure with conventional trade implications; and then assess the proportion of cost of this against the services, finishes, and fittings.

To make a cost plan he requires figures that can only be obtained by Cost Analysis of previous jobs. This analysis is accepted by the Cost Research Panel as being the province and responsibility of the quantity surveyor, and now only ten months after its formation the RICS are circulating to their members a questionnaire designed to provide and standardise cost information from a large number of contracts, to form the basis of an information service to quantity surveyors, so that they in their turn may provide the required analysis to their architects and assist with the cost plan.

How this analysis is arrived at is therefore not the real issue; whether it be by 'Trades,' 'Elements' or, as is suggested by the Panel, by 'Techniques'—though what is meant by this term does not emerge very conclusively from the exhibition—is more a matter of expediency. It does not really matter in the long run whether the extra burden and cost of these new requirements falls on the builder, the architect or the quantity surveyor, for training of the right personnel in the right analysis techniques must follow in any event. If by teamwork in the end the total cost is reduced then the means, whatever they may be, are justified. The building owner pays all three parties and what matters to him is his total capital expenditure, which is the sum of all the labour and materials used on the job (plus those wasted, or mis-used in ignorance of their cost implications, by the architect on his drawing board), builders' profit, and professional fees to the architect and quantity surveyor.

It is certain that cost analysis and cost planning will mean more work for architect and quantity surveyor (and, if the elemental method is used, perhaps for the estimator too) but just how much more and what it will cost may not emerge until the joint techniques have passed more fully into everyday practice.

How far the RICS questionnaire can succeed in the absence of a standard method of estimating by the builders and perhaps a standard definition of design elements by the architects is a matter for conjecture, but for general use the cost planning will need to be more comprehensive than in the example shown in the exhibition where 'structure' contains 60 per cent. of the total costs (£1,229,000 of £2,041,000) and is not broken down further, though the finishes and fittings have been subjected to numerous alternative breakdowns. In fact it is in this element 'structure' that the designer needs most guidance.

For the panel to have produced this exhibition after so short an existence is a commendable and remarkable achievement. Let us hope that it will invoke constructive criticism, as it is an encouraging sign of awareness on the surveyors' part, and leaves us in hopeful anticipation of the RIBA Cost Committee report, due shortly, besides prompting the question: 'What are the Builders doing?'

Notes of the Week

Fixed Price Contracts ?

A NUMBER of subjects of great current interest were mentioned by the Minister of Works in the speech which he made on Monday in opening the exhibition at the Brixton School of Building. In particular, Mr. Molson spoke (1) of the need for planning in full detail before beginning the work of building; (2) of the fixed price contract of which, he said, there ought to be more; and (3) of the need for improved managerial techniques.

AIA Centennial Stamp

These three matters are, of course, closely linked, for together they offer the most likely method of reducing the cost of building in so far as the professional and technical parts of the industry are concerned. On the first and third of Mr. Molson's points there will be little cause for disagreement among architects or builders. Both are so self-evidently important that the wonder is that more has not been done about them, even remembering how head-strong clients can be on the one hand, and on the other how reactionary some builders may be to overhaul their management processes. Progress is, however, being made through the Building Advisory Service and through the keen interest in management which some of the National Federation Areas are now taking.

☆ ☆ ☆

There will be more cleavage of opinion on the question of a general return to fixed price tenders. Views are known to be sharply divided here as between the regions which make up the National Federation, yet what a great thing it would be for the industry if the Federation could take the decision to advocate this step, or at least to agree nationally to recommend the Areas to make their own decision on the matter. In the present state of things, neither of these courses—which would bring, if implemented, much public credit—is likely to be taken, and one fears that the lead, if one is to be given, will come not as it should from the industry but from the Government. A pity!

☆ ☆ ☆

There is, nevertheless, a good deal in the view expressed by some builders that the *quid pro quo* — the guarantee that drawings will be finalised before tenders are invited—may not materialise and that contractors will be placed in the position of having still to guess at a tender figure by which they will have to stand. This is a danger that is very real, and one that can only be prevented by concerted action by clients, architects, quantity surveyors and builders, working together in loyal co-operation.

A Centennial Stamp

REPRODUCED on this page is a US postage stamp which will turn British architects pale magenta with envy. The readiness of some countries to commemorate events of importance with a special stamp is something which does not seem to filter through to our own Post Office, efficient as it otherwise is. Our reproduction is facsimile of a three-cent stamp commemorating the forthcoming Centennial on May 14 of the American Institute of Architects. Light magenta in colour, the stamp commends itself by the effective simplicity of the two column caps and clear lettering. Why not a British stamp to commemorate the bicentenary of the birth of Thomas Telford, the great engineer, on August 9, 1757? And why not, also, one for the 125th anniversary of the RIBA, in two years' time? Over to you, Mr. Marples!

News from Down Under

'WE have had a tremendous welcome at Singapore, Perth and here; lots of parties and some very useful talks but somewhat exhausting. However, we shall survive. On to Melbourne to-morrow. KMBC joins me in best wishes to you.' Thus an airmail card from 'Bill' Spragg from Adelaide where, with the President RIBA, K. M. B. Cross, he had spent three days (March 28-30) as guests of the South Australian Institute of Architects and, in the process, called on the Lord Mayor, the Governor and the Premier—all within 90 minutes. Then on to Melbourne where, on April 3, Mr. Cross addressed the annual general meeting of the Royal Australian Institute.

☆ ☆ ☆

A report of his speech (see p. 672) shows that the President has developed the theme of a basic examination for the Associateship RIBA which he first outlined in Singapore, though local reactions to it are not known. But we shall be surprised if this plan of a technical passport for Commonwealth architects is not favourably received. It should raise standards, as the President has said, rather than depress them.

Since Melbourne, the RIBA visitors have been to Tasmania and are now in Queensland where to-day (Friday) they will meet the Governor, visit the Department of Architecture, Queensland University, and visit the Premier. On Sunday, they leave for Sydney where, on Wednesday next, the President addresses the NSW Chapter, before leaving on April 20 for New Zealand.

R. S. Reynolds Award

A SPANISH firm of architects, Cesar Ortiz-Echague, Manuel Barbero y Rafael de la Joya, of Madrid, has won the $25,000 prize for the most significant contribution to the use of aluminium in the building and architectural field. The building is a canteen and rest room at the SEAT car factory in Barcelona which uses aluminium as the main structural and roofing material with glass and brick as the other components. There were 106 entries by 81 architects, five being from England and Wales.

IMPERIAL COLLEGE HALL OF RESIDENCE.—Thanks to a munificent gift of £150,000 by Vickers, Ltd., a new hall of residence to be known as Weeks Hall is to be provided for the Imperial College of Science and Technology. Planned on a site in Princes-gardens, SW7, this is part of a larger development of the immediate area for students' residential accommodation for which plans have been prepared by Richard Sheppard & Partners. Accommodation will be afforded in the present building for 70.

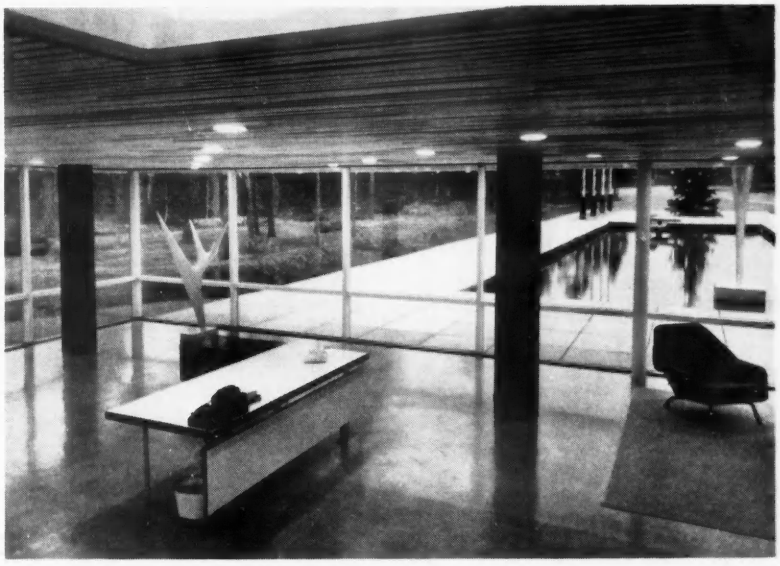
ARCHITECTURE OF FINLAND

A Current Exhibition at RIBA

THE timing of this exhibition at the RIBA in the week when Alvar Aalto is both to receive the Institute's Royal Gold Medal and deliver his Discourse is, of course, a coincidence only in the contrived sense. But it is also most timely in other ways.

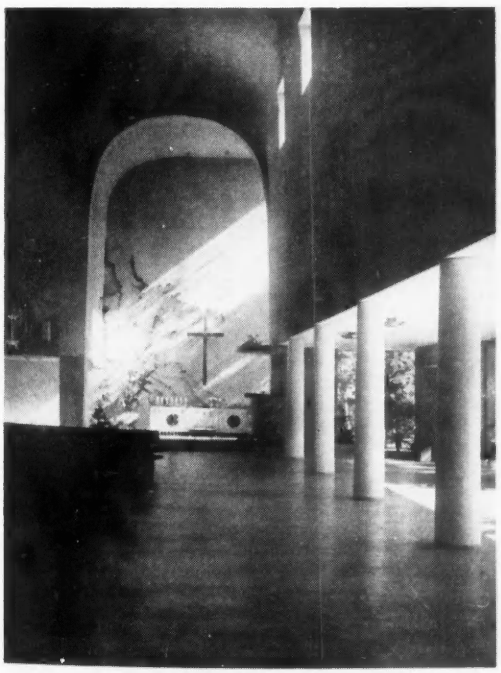
From a preview early this week, two outstanding impressions remain. First, that this may well lead to a reappraisal of northern architecture — and without the 'agonising' adjective that turned that intended transatlantic rocket into a damp squib. Secondly, that the RIBA's exhibition space has seldom looked so well. These impressions, though of disparate importance, are related. What is, of course pure coincidence is that the last (French) exhibition there—frankly a little overblown in presentation for all its excellence of content—left a slight feeling somehow epitomising the drift of interest towards the Latins as a natural revulsion from the pre-war Scandinavian furore, but now needing a counterbalance.

The calmer and less exhibitionist northern approach, as reflected in the design for this exhibition itself, could hardly be in more direct contrast. A consistent 'horizontalism' of low screens with stark, matt black or white backgrounds on which the photographs are mounted, free-standing; the purposefully-pointing fingers of screen-lights (the windows are blacked out), and the central feature of sawn birch planks, some left unbarked, mounting enlarged 'background' photographs—all these express a crispness and lucidity reminding us of values temporarily lost sight of in reaction from what was once becoming a little self-righteous and ghastly-good-tasteful in the northern fastnesses.



FROM THE RIBA EXHIBITION.—Kudeneule Factory, Hanko (1956), *by Vilje Rewell*

In a lyrical foreword, Sigfried Giedion refers (specifically in relation to Aalto) to 'a certain charm of extreme hardness in which the heavy fate of the country is crystallised.' But, with respect, one may venture to add that this is not the embittered or de-humanised hardness of defeat, and springs from no poverty of genius or of media for its expression, but from the equivalent of the muscles of an Olympic runner. Though it is dangerous to speculate on the climate and atmosphere of a country of which one is ignorant, I envisage Finland as transmitting and reflecting an all - pervading crystalline light. If so, this presents no need for such aesthetic evasions as characterise the baroque, more valued for the shadows it casts than for its intrinsic merit. Yet with this floodlit matter-of-factness, Finnish architecture preserves that essential quality of mystery: I would hesitate to use the word 'Byzantine' had not my Finnish architect-guide taken it from my mouth by including Hungarian, and even Magyar, elements in his racial and cultural complexities.



FROM THE RIBA EXHIBITION.—Burial Chapel, Turku (1940), *by Erik Bryggman*

Aalto and the Saarinens stand out in this exhibition less as isolated eminences that as 'stiffeners' to the fabric, or as 'first violins.' Other musical analogies are repeatedly prompted by the statement of theme, followed (as a quasimathematical exercise) by the development of variations—but always within a self-imposed framework. Here this is of standardisation in the application of familiar, indigenous materials to humanistic ends: wood is naturally predominant, coming as aptly to the Finn as stone to the Celt.

In what follows, from a privileged but inevitably hurried visit to a show incompletely captioned, I apologise for any mis-spelling, or mis-crediting, of places or authorship. Of historic buildings, the XIV Century Church of Hattula exemplifies the Byzantine I suggested earlier. Of early Modern Movement, Eliel Saarinen's Helsinki Railway Station, and Aalto's Sanatorium at Paimio and his Viipuri Public Library interior are highly prophetic, for the late '20's. Of later years, the following are noteworthy: the Turku Burial Chapel by Bryggman, with Jussi Vikainen's splendid bas-relief; Aalto's pre-war Sunila Sulphate Cellulose Mill, Kaihula; Lindegren and Jantli's Olympic Stadium—notably for its well-treated exterior, rare if not unique in sport architecture; Aalto's Civic Centre at Saynatsalo, with unusually large areas of unbroken brickwork, and oddly medieval wooden trusses; Ervi's University Library, Turku; and the strange organic shapes of door handles, shown close-up in Aalto's Rautatalo Office Building. Almost a world in itself is the 'Tapiola Project,' which will include Aalto's Institute of Technology, and the scheme for the centre by Ervi.

The New Brutalism, if it ever existed, is burned out for the simple reason that all attitudinising must fail. Finland clearly offers something better—a New Naturism, if there must be labels. But to combine simplicity and directness with artistic sensitivity and technical skill is the very reverse of the mark of the beast. This is one of the most civilised exhibitions we have seen for a long time.

BASIL MARRIOTT.

CORRESPONDENCE

The Jaguar Factory Fire

To the Editor of *The Builder*

SIR,—If my interpretation of Mr. L. R. Chambers' letter in your issue of March 29 is correct, the main point that he seeks to establish is that fire spreads more rapidly on a smooth bitumen surface that cannot be made to burn until its temperature is raised to 600 deg. F., than on a rough fibre board surface which can be ignited quite readily at room temperature. He appears to associate this statement, which is hard to assimilate, with a fire at Livonia in which neither protected metal nor fibre board were involved. The only correlation between the Jaguar fire and the Livonia fire is that both forms of construction were unsuitable.

The main point of my earlier letter was to draw attention to the fact that a protected metal and fibre board, when incorrectly used, are dangerous, and when correctly used are satisfactory. This is a fact that we recognised many years ago when we established a method of insulating buildings with the insulating board in contact with the roof sheets and mechanically fastened to them. We also recognise that even in this form of construction, if untreated fibre board is used, there is an unduly high hazard. We therefore developed a method of treating fibre board so that it has no flame spread. This product is on the market and is specified by us for lined roofs.

Where its fire performance is of small significance, as in the insulation of steel roof decks, we use untreated fibre board, and are probably the largest individual consumer.

Surely our approach to the performance of combustible materials in industrial construction should be to ensure that the method of construction used is that which is suitable, for it is a disservice to any product not to recognise where it is suitable and where it is not. My firm has given many years to the study of industrial construction of lightweight roof coverings, and we may legitimately claim to have as wide an experience as anybody in this country. We are more than willing to pass on the results of our work to anyone who can benefit from them.

It is clear that this offer is necessary, because Mr. Chambers is obviously unaware that it is not necessary to line existing buildings below the purlins—it is not even desirable; there are sound and economic methods of carrying out this construction with the boards against the roof sheets and mechanically attached to them.

C. THAIN, Managing Director,
Robertson Thain, Ltd.

Clutha House, SW1.

'I build a new home—along he comes like the Chancellor of the Exchequer and bang goes my nest-egg!'

Coloured Students and the Building Industry

To the Editor of *The Builder*

SIR,—Permit me space in your Journal to point out a grave situation which is being created between some British building firms and the coloured students in the building industry. Many cases have come to my notice of building and civil engineering students wanting to have some practical and industrial experience in some establishments and being refused because of their colour, although this is not categorically stated in the replies given to these students. But in the light of things that do happen, there is a lot of evidence to show that a discriminatory attitude is being practised by these firms. Even with firms who derive the major part of their annual profit from the various countries of these students, such discriminatory attitude exists.

May I just point this out—that it is time for the British building industry to stretch out its hands of good will to these overseas students. Their countries are now edging towards full self-government, and there are a lot of developments now going on in their countries which could attract British and other foreign firms, but I should say now that unless the industry creates a 'good will' towards these students, there may be the tendency for a regrettable attitude in the near future. Some of these students are going to be the government of to-morrow in their various countries, and if now a great wound which may not readily heal is created in them by the unwarranted attitude of some British firms, the industry will be the loser. There are a lot of invitations from foreign countries for these students to study and practise with them, but because of the great motherly tie which exists between their various countries and Great Britain, these students refuse these invitations and avail themselves of studies in England.

I therefore appeal strongly to the British firms as a whole, particularly the building and civil engineering firms, to amend their ways now. It is on these simple things that a good commonwealth of nations could stand firm. Remember, 'charity begins at home.'

F. I. OSIKOYA

39, Offley-road, SW9.

Gravel Pits in Hampshire

To the Editor of *The Builder*

SIR,—Planning authorities in Hampshire and Berkshire are now facing proposals to excavate gravel in beauty spots, including the 'Green Belt' in the Blackwater Valley. If these proposals are accepted, more and more agricultural land will become as full of swamps and ponds as can be seen by passengers in trains running between Staines and Twickenham.

Of course gravel is required, especially for the new Atomic Power Stations and housing estates. Some areas are suitable for gravel workings, while other areas close to homes and on 'Green Belts' should, if possible, be protected. Recently, in Hampshire, proposals to excavate gravel at Brambridge Park were rejected by the Ministry of Housing and Local Government. Some gravel companies wisely try to hide the work of destruction by planting trees and bushes.

Unfortunately during the past few weeks I have watched irreparable damage being inflicted in the village of Yateley, noted for its rural beauty, by a gravel company. Chandlers Farm, part of which dated from the XVIth century, has been pulled down. Some bricks dating from before 1540 have been used for foundations for a road to carry gravel lorries. This farm had bathroom, drainage, electric light, etc., installed in 1951, and could have been converted into at least four flats.

Further, Yateley has already had to sacrifice over 200 acres of land, some arable and some poorer quality, to a gravel company which is now applying for permission to extend and build in the 'Green Belt' scheduled in 1945 to be free from all residential and industrial buildings. Although the reasonable distance to be left between a gravel pit and occupied residences is usually considered by planning authorities to be at least 400 yards, in Yateley to-day excavations are taking place within a few yards of houses, and a high wired fence with barbed wire on top has been erected along the whole of a country lane.

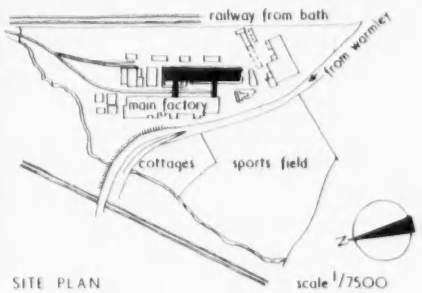
B. S. TOWNROE
[OBE, JP for the County of Hampshire, Hon. ARIBA].

Maresfield, Yateley, Nr. Camberley.

RSH Essay Competition

THE Royal Society of Health announces that the title for its 1957 John Edward Worth Essay Competition will be 'Modern Methods of Space Heating, Central Hot Water and Refuse Disposal in Relation to Central Redevelopment,' and that of its 1957 John S. Owens Prize Essay Competition 'The House and Its Heating System.' The latter is to deal with the provision of space heating, hot water and cooking for a family of two adults and two children in a house of 1,000 to 1,200 sq. ft. area, and taking into account overall cost, fuel efficiency and fuel saving, health aspects and mitigation of air pollution. Details and conditions of entry from the Secretary, Royal Society of Health, 90, Buckingham Palace-road, London, SW1.

East elevation



SITE PLAN scale 1/7500

OFFICE, CANTEEN & PRODUCTION BLOCK, Bristol

for Carsons Chocolates, Ltd.

THE design problem was to provide a new building to accommodate offices, canteen and kitchens for male and female employees and extra production space. The existing factory already housing the offices and canteen is several storeys high and situated upon a confined site flanked with railway sidings. In accommodating the offices and canteen in a new building, a large part of the old building became available for extra production and storage space.

The new building was planned as a long, rectangular block, 290 ft. in length and 50 ft. in width, connected to the old factory with three separate bridges.

It was decided that prefabrication should be applied as far as possible to the whole of the structure, to save much time in the building operations on the site. With this principle in mind, curtain walling was chosen as the main form of external walling, and covers each side of the complete length of the building, and encloses three out of the four storeys. The two end elevations were designed in face brickwork where little fenestration area was required, and therefore act as a foil to

Architects:
ANGUS McDONALD & Partners

Architect in Charge :
J. L. CROSS, ARIBA

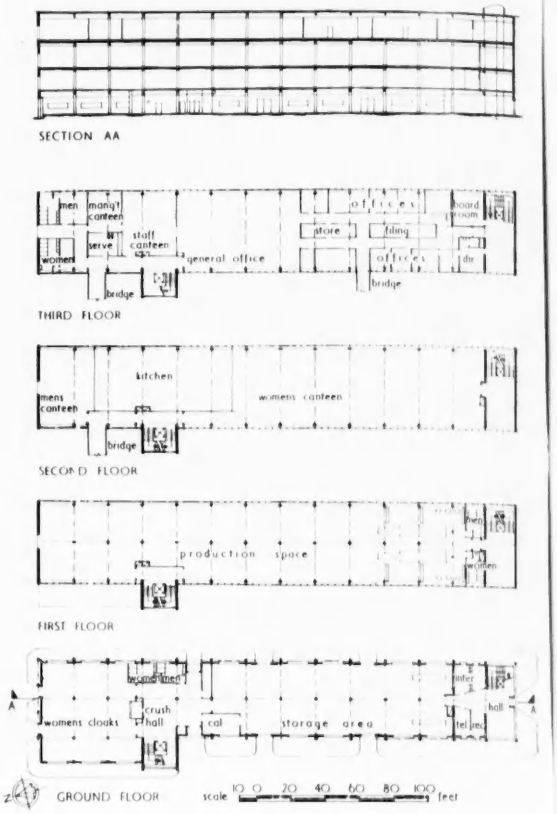
Structural Consultants :
NORRIS INDUSTRIAL CONSULTANTS, Ltd.

Quantity Surveyors :
EDMONDSON & SIMS

Clerk of Works : J. LUM

Builders :
HOLLAND & HANNEN and CUBITTS, Ltd.

Staircase fenestration



PLANS & SECTION, Scale : 1 in. = 96 ft.

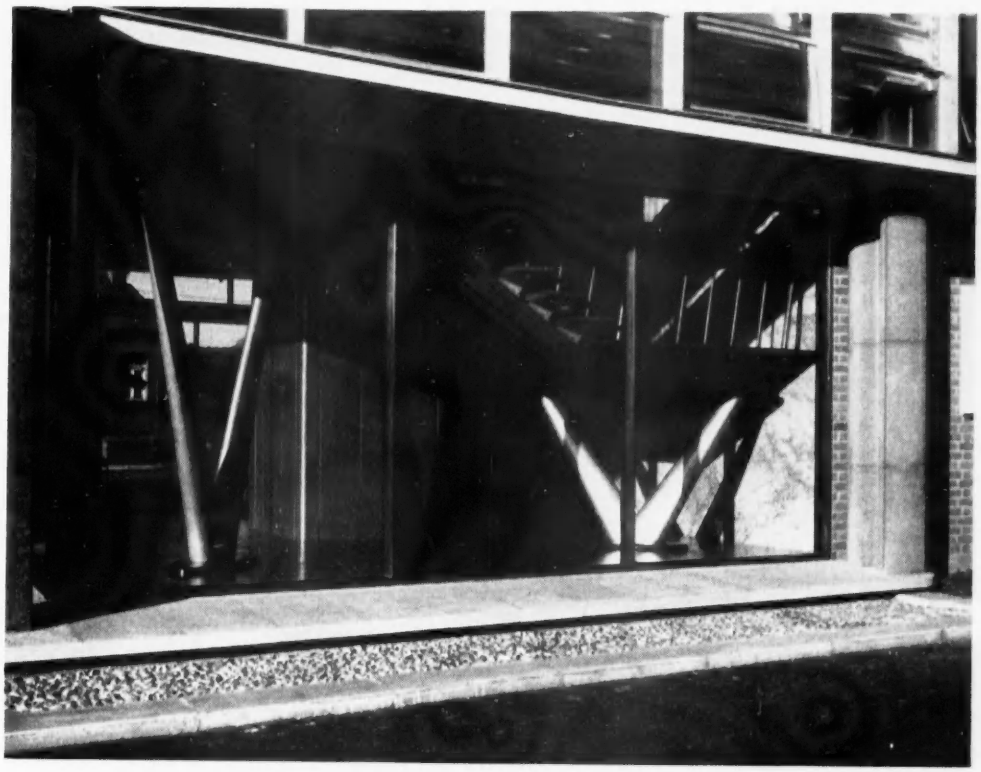
the curtain wall grid. The curtain walling was not designed to cover the ground floor for practical reasons, as the possibility of damage by vehicles could not be overlooked. The whole of the curtain walling was erected by the use of suspended cradles, and no scaffolding was used except for the two brick end elevations. This was one of the first buildings designed in this country with this particular type of curtain walling, the only example of its kind at the time being in Canada.

The principle of prefabrication was carried through to include the main steel frame, precast concrete floors, precast terrazzo cladding for the steel stanchions which was used as permanent shuttering, the main staircase in tubular steel carriages with mahogany treads, partitions, and the bridges constructed with lattice steel girders supporting a timber core, and clad with corrugated aluminium sheeting.

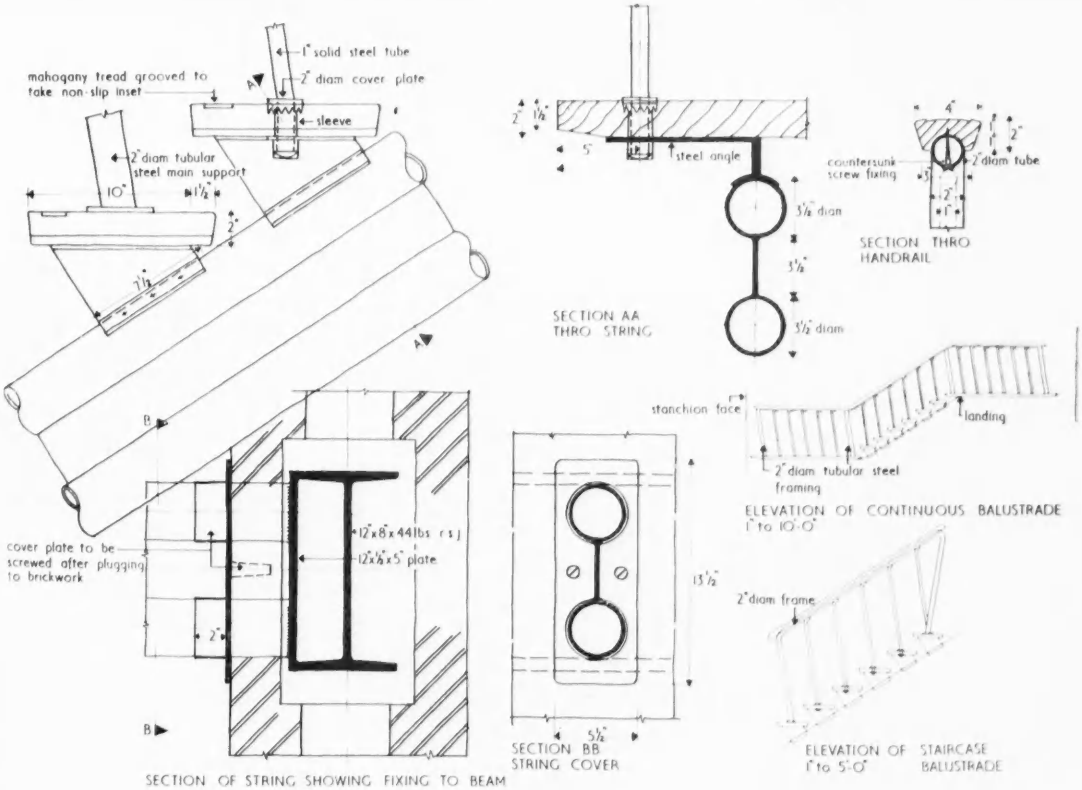
Office, Canteen and Production Block, Bristol

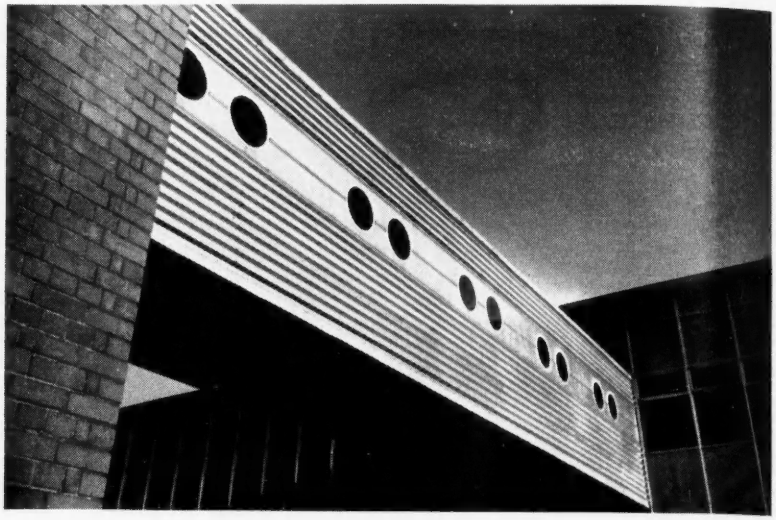
From the south-west

Main staircase supports from the outside



STAIRCASE DETAILS, Scale: One-tenth Full Size, and various keys



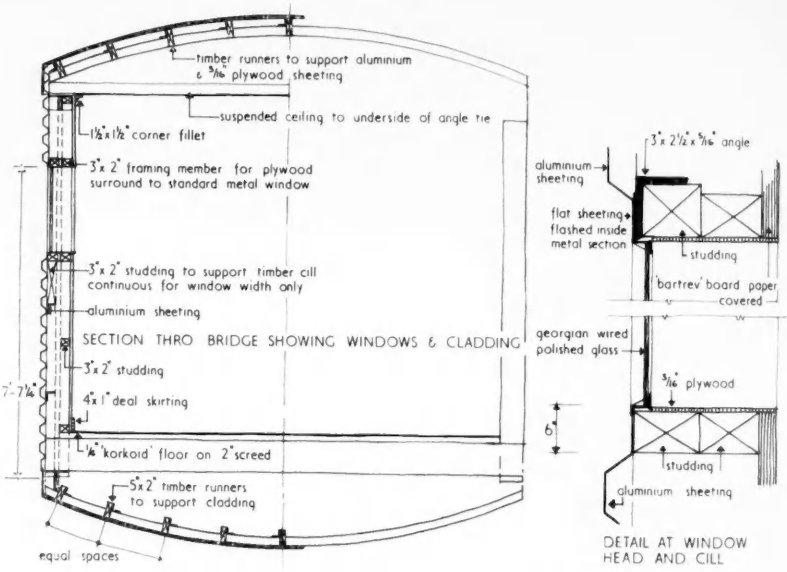


One of the bridges spanning between the old building and the new, at third-floor level

Subcontractors & Suppliers :—

Steelwork, Banister, Walton and Co., Ltd.; floors and roof, Concrete, Ltd.; curtain walling and metal windows, Williams and Williams, Ltd.; frame encasement, Marble Mosaic Co., Ltd.; bricks, Proctor and Lavender, Ltd.; lens lights (port holes), King and Co., Ltd.; asphalt, Asphalte Specialists, Ltd.; bridge cladding, Baileys (Bristol), Ltd.; heating and production steam, Benham and Sons, Ltd.; radiators, Gulf Radiators Ltd.; ceiling heating, Frenger Ceilings, Ltd.; kitchen equipment, Benham and Sons, Ltd.; electric light fittings, General Electric Co.; Falk, Stadelmann and Co., Ltd.; electric lighting and power, Porter and Co., Ltd.; plumbing, Arthur Scull and Son, Ltd.; pipes and tubes, suppliers to Benhams, Sculls and Birmingham Guild, Ltd.; sprinkler system, Mather and Platt, Ltd.; flooring (lino-type), Korkoid Decorative Floors; flooring (Terrazzo), Marble Mosaic Co., Ltd.; flooring (Grano), Plastona, Ltd.; flooring (asbestos type), G. R. Speaker and Co., Ltd.; Flooring (hardwood strip), Horsley, Smith and Co. (Hayes), Ltd.

Lifts, Wm. Wadsworth and Sons, Ltd.; wall tiling, Bristol Art Floors; tiles, Richards Tiles, Ltd., H. and G. Thynne, Ltd., J. C. Edwards (Ruabon), Ltd.; ceilings (suspended), Acousti, Celotex and Asbestolux by Bryce White and Co., Ltd.; sanitary fittings, MAC Engineering (Bristol); incinerators, The Hygienette Manufacturing Co.; w.c. cubicles, Rofton by Williams and Williams; ironmongery, MAC Engineering (Bristol); James Gibbons, Ltd., P. C. Henderson, Ltd.; main entrance and display fittings, Home and Sons; main staircase and south stair balustrade, etc., Birmingham Guild, Ltd.; aluminium and alloys, Northern Aluminium Co., Ltd.; venetian blinds, John Wood and Sons (Bristol), Ltd.; paints and distempers, E. Parsons and Sons; Henry Matthews and Co., Ltd.; painting subcontractors, W. J. Naylor and Co. (Painting Contractors), Ltd.; wallpapers, Sanderson's and 'Palladio' supplied by Cotterell Bros., Ltd.; lettering, Ward and Co.; plastering, C. V. Gelling, Ltd.; flower urns, Charlton Concrete Co., Ltd.; pre-cast concrete kerbs, etc., Charlton Concrete Co., Ltd.; marble, Philip Leek (Bristol), Ltd.; flowers, Luke Rogers and Sons; panelling, J. Long and Son (Bath), Ltd.; window cleaning, Palmer's Travelling Cradle and Scaffold Co., Ltd.; telephones, GPO; board room furniture, Bath Cabinet Makers, Ltd.


timber runners to support aluminium
ε 3/16 plywood sheeting
suspended ceiling to underside of angle tie
1½"x1½" corner fillet
3"x 2" framing member for plywood surround to standard metal window
3"x 2" studding to support timber cill continuous for window width only
aluminium sheeting
SECTION THRO BRIDGE SHOWING WINDOWS & CLADDING
3"x 2" studding
4"x 1" deal skirting
7'-7½"
½" 'korkoid' floor on 2" screed
5"x 2" timber runners to support cladding
equal spaces
3"x 2½"x 5/16" angle
aluminium sheeting
flat sheeting flashed inside metal section
studding
'bartrev' board paper covered
georgian wired polished glass
3/16" plywood
studding
aluminium sheeting
6"
DETAIL AT WINDOW HEAD AND CILL

DETAIL OF BRIDGE CONSTRUCTION

Scales: 1 in. = 8 ft. and One-eighth Full Size

Office, Canteen and Production Block, Bristol

Main entrance hall at the southern end of the building, inquiry counter on the left, main stairs on the right

View at night from the main street

FLOWER SHOP, Eastbourne

for G. T. Scott (Eastbourne), Ltd.

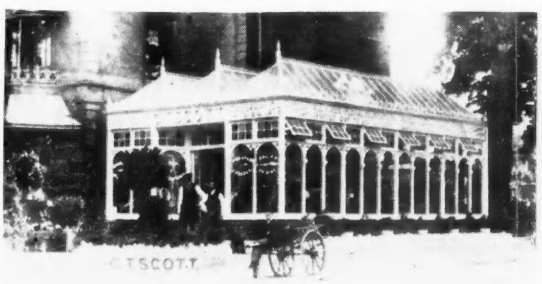
Architect : H. HUBBARD FORD, FRIBA

Builders : A. HUDSON & Son

OWING to the elongated shape of the site and the need for additional accommodation at the extreme west end, very careful planning was necessary. The sales area is entered from a raised forecourt and contains terrazzo-tiled display stands which are raised 8 in. and 16 in. above floor level, a fish pool, order desk, and telephone recess.

The sales area is continued to form a corridor to the dispatch, fruit and utility rooms at the rear of the building. Half-way along the corridor is a wrapping table, and the display stands are carried along the corridor giving the maximum window display area. The corridor also gives access to the central direction room, conditioning room, florist and dispatch rooms. A studio for the taking of special orders is entered from the sales area.

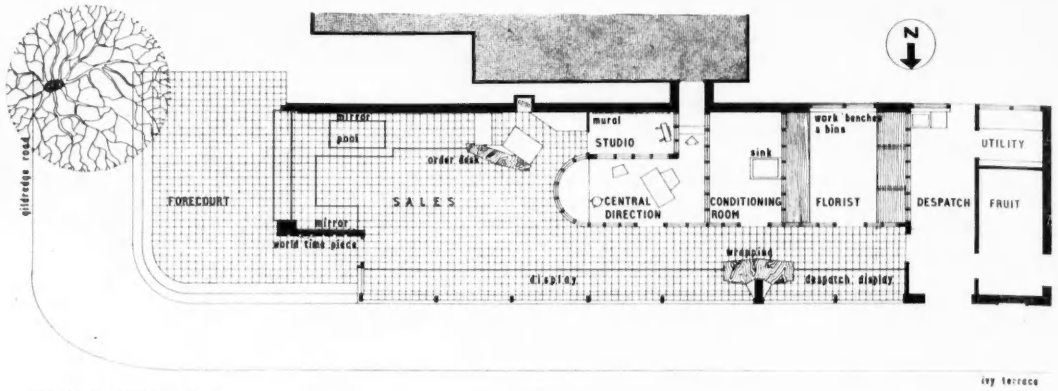
The site in 1872



The whole of an existing building, with the exception of the timber roof and matchboarded ceiling, was removed, leaving existing steel stanchions and beams spanning across the building at 7 ft. 6 in. centres. All the steelwork is encased in blockboard. 10-in. by 2-in. moulded timber joists supporting the roof of the canopy have been left exposed, with 1½-in. by 2-in. moulded fillets fixed to the underside of the joists bearing on the R.S.J.s. These exposed joists are also fixed throughout the sales area.

The main display window is in ¼-in. polished plate glass with an inclination to minimise reflection of 12 in. from top to bottom. A venetian blind is provided to this window.

A pillar to the right of the front window, and containing the stall riser, is in Horsham stone. Wooden lettering is secured direct to the plate glass with Bondcrete.



PLAN. Scale: 1 in. = 16 ft.

The wall at the side of the main entrance is covered with 12-in. by 12-in. reconstructed white marble tiles with 1-in. black cement joints containing gold mosaic insets. Mounted on this wall is a 24-hour clock.

Internal screens are colour-washed 4½-in. sand-lime brickwork to a height of 3 ft. above which are glazed softwood painted screens with the doors opening out into the corridor. The floors of the studio, central direction room, conditioning room and florist, are in colorphalt and the dispatch, fruit and utility rooms have a wood float, cement screed finish. In the florist's room bins for storing moss, etc., are made of 4-in. concrete blocks with zinc-covered timber lift-up tops.

The heating of the building is carried out with hot-water radiators fed from a boiler in a small basement under the shop. Through ventilation of the shop is by a large centre-pivoted fanlight over the main entrance door and six centre-pivoted 12-in. diameter circular ventilators, with bronze frames set in the plate glass windows to the side road.

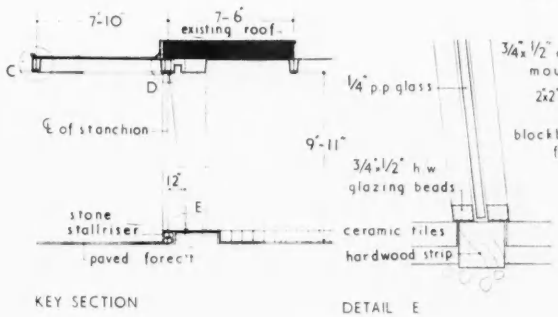
Flower Shop, Eastbourne

Subcontractors & Suppliers:—

Glass, James Clark and Eaton; tiling, Louis G. Ford, Langleys Ceramics; electrical contractors, Beney's; clock, Smith's Clocks; Horsham stone pillar, Hall and Co.; steel, Hotchkiss; satin wall, Plummer Roddis; mural, Delaney Studios; telephone booth, Burgess Acousti; conditioning stand, Williams; display stands, Beanstalk; canvas, Green Bros.; furnishings, Louis G. Ford; venetian blinds, Plummer Roddis; display vases, Cocquerels; lettering, C. E. Dansie; terrazzo, ceramic tiles, Langley London, Ltd.; built-up roofing, Limmer & Trinidad Lake Asphalt Co., Ltd.; and acid-designed mirrors, Guildford Glass and Metal Works, Ltd.

General view from Gildredge-road

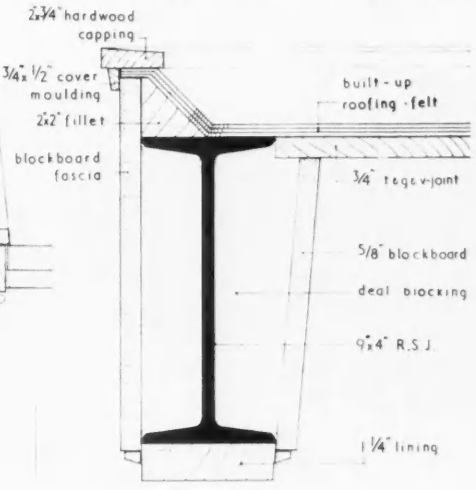
KEY, Scale: 1 in. = 10 ft.



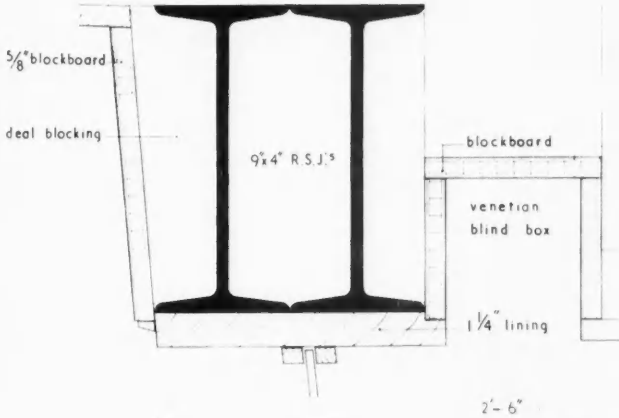
KEY SECTION

DETAIL E

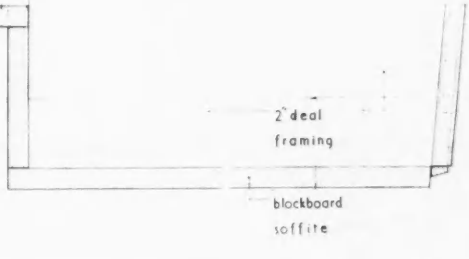
CONSTRUCTIONAL DETAILS, Scale: One-fifth Full Size



DETAIL C



DETAIL D



The President in Melbourne

Mr. Cross Addresses Royal Australian Institute

BETTER organisation of the educational system for architects and setting up of regular overseas conferences to strengthen Commonwealth bonds were advocated in Melbourne on April 3 by Mr. Kenneth M. B. Cross, MA, President of the Royal Institute of British Architects.

MR. CROSS, who was addressing the annual general meeting of the Royal Australian Institute of Architects at Melbourne University, said that 'architects must get closer together, and strengthen the existing ties or we must slowly but inevitably drift apart and we, in the British Isles, might ultimately revert to the position we occupied in Victorian times as a professional society of limited scope.

'We must not get tied up with a lot of detail; there are numerous problems —difficult ones, too—connected with registration and education which can only be solved with time and goodwill,' he warned. 'The suggestions I have to make are purely tentative, and all I ask is that you should give them consideration. I should make it clear that in our opinion the devolution scheme as it now operates should continue until we have agreed between us on some satisfactory scheme to take its place,' Mr. Cross emphasised.

Departure from Previous Policy

'Membership of the RIBA outside the British Isles is about 2,882 members, and the distribution of the recognised schools at which qualification for the Associateship can be obtained is somewhat uneven throughout the Commonwealth. There is a keen demand in places such as West Africa, Hong Kong, Malaya and the West Indies for greater facilities for architectural training and ultimately qualification for membership of the RIBA. We agree that we must press ahead with trying to meet those demands but we realise that in so doing we are departing from the fundamental RIBA policy for the past 25 years, which is that the requirements of registration under the Architects Registration Acts in force in the United Kingdom and the Associateship should be identical.

'This policy has not been followed completely in respect of examinations recognised for Associateship in Australia and New Zealand under the devolution scheme, but nevertheless it has remained one of the chief considerations which has governed our policy for many years,' said Mr. Cross, who added: 'The first suggestion I would put before you is that there should be a basic examination throughout the Commonwealth for the Associateship of the RIBA, but that where registration is in force as it is in England and in many of the Dominions and Colonies there should be a local examination taking account of local conditions in addition to the basic examination for purposes of obtaining local registration.

'Any arrangement would, of course, be reciprocal, and the London student wishing to practise, say, in West Africa, would have to take the additional local examination after he had taken the basic examination in London.

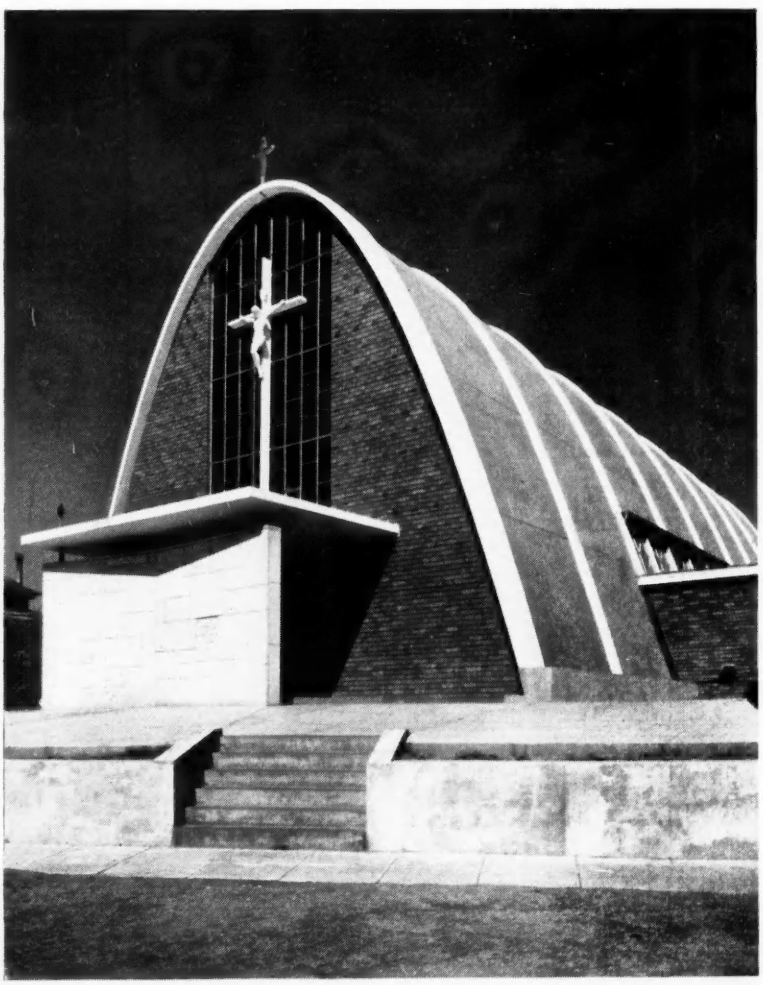
'This assumes the existence of examinations of a common level wherever examinations are held, and there is no question of lowering the standards but rather of raising them,' Mr. Cross pointed out. 'The Board of Architectural Education in London is now considering general principles and outline syllabuses for a basic universal examination should that proposal be acceptable. The basic examination plus the local examination in professional practice and other subjects peculiar to local conditions would be the qualification for the Associateship of the RIBA. It would, of course, take some time to work out the details and to bring such a scheme into being—the process would be one of gradual evolution rather than violent change.

'The advantages gained by the flexibility of such a scheme are obvious,' Mr. Cross said.

Overseas Conferences

To give effect to his suggestion that Commonwealth architects should get closer together, the President then outlined his proposal for Overseas Allied Societies Conferences held at regular intervals in various centres in the different countries in rotation, in Australia, New Zealand, Africa, Canada and the British Isles.

'Two delegates from each Institute or Society,' Mr. Cross continued, 'might attend such meetings, held perhaps every three years, and in this way the whole architectural group might gain cohesion and benefit from the discussion of mutual problems and from the exchange of ideas and in times of crises or difficulty formulate a common policy for dealing with the situation.'



NEW AUSTRALIAN CHURCH.—A general view of the new St. Bernard's Roman Catholic Church at Botany, Sydney, designed by the Sydney architect, Kevin J. Curtin. In contemporary style, mainly of concrete, the church has a parábolic section, and was largely prefabricated. The exterior is finished with marble chips embedded in concrete, with textured and patterned brick on the front wall. Seating is provided for a congregation of 400

The inn sign

'Coracle' Inn

Shrewsbury

Architects:
RICHARD & DOUGLAS HALL

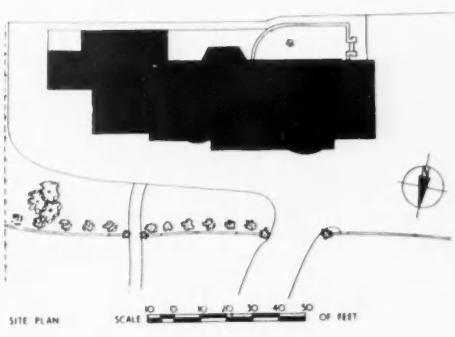
Builders:
JOHN BROMLEY & Sons

AT the official opening the opening speech was made by Mr. Sperling, director of Ind Coope and Allsopp, Ltd., who also drew the first pint, the ceremony of cutting a tape to launch the 'Coracle' being performed by Mrs. Cock, Mayor of Shrewsbury.

The building is of traditional construction; in order to provide for a future clubroom at first-floor level, timber purlins are carried on steel portal trusses. The walls are of normal 11-in. brick cavity construction, externally rendered with Tyrolean finish down to the Dennis of Ruabon heather-brown brick plinth.

Floors are of wood block throughout except in the public bar and in circulation areas where they are of heather brown tiles; the tiles in the public bar are 9 in. by 9 in., the remainder 6 in. by 6 in. with skirtings to match. Wallpapers are used in the three main rooms. Those parts of the walls subject to soiling are covered

North elevation



with Lincrusta Walton and are further protected in the most vulnerable positions by sheets of a new decorative glass, 'Vitroflex.'

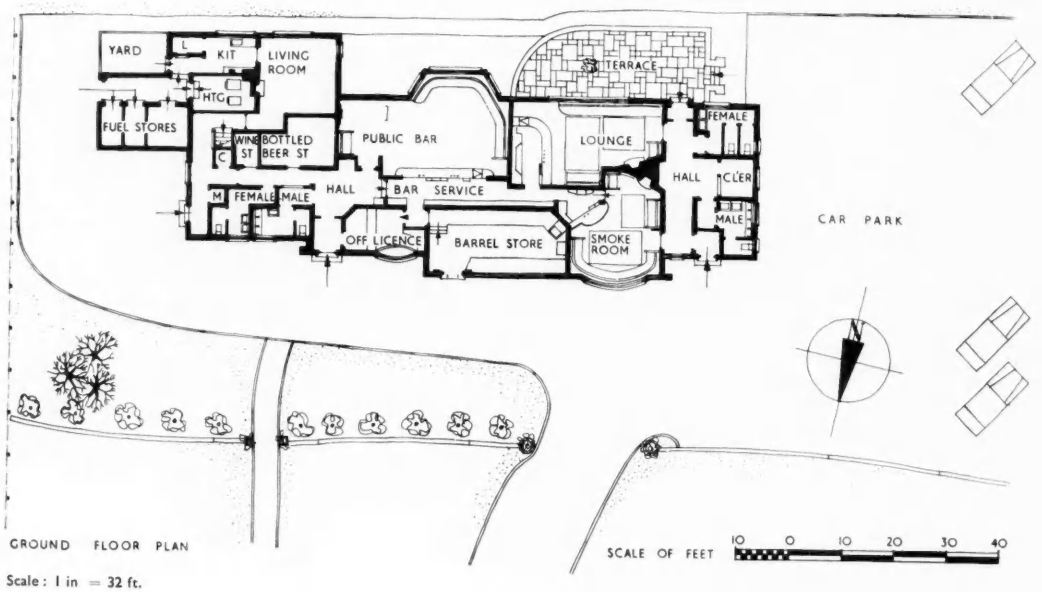
The heating of the principal rooms is by low-pressure hot-water pipes laid chiefly under the fixed seating; the capping on top of the backs of fixed seating is set at an angle (to prevent glasses being placed there) and they include BMA grilles as an outlet for the heat from the pipes underneath.

The heating chamber contains two Watts anthracite boilers, one for the domestic hot water (including bar wash-ups) and the other for the comprehensive central heating.

The ventilation system includes ducts and extract fans arranged to a single point of extract; impure air is extracted from the three main rooms through grilles in the walls above the bar counters.

The back fittings are brightened by masked strip lighting directing their light through glass shelving. Mirrors in the back fitting are concentrated at the focal points. General lighting in the service areas is by flush fittings set in the ceilings which have been sloped in order that the light is directed at the back fittings and not into the eye of the customer.

The bottle shelving is sloped downwards and backwards; this enables storage capacity to be increased because the bottles can be stacked on their sides instead of vertically. The beer-pulls in the public bar match the wallpaper in colour.



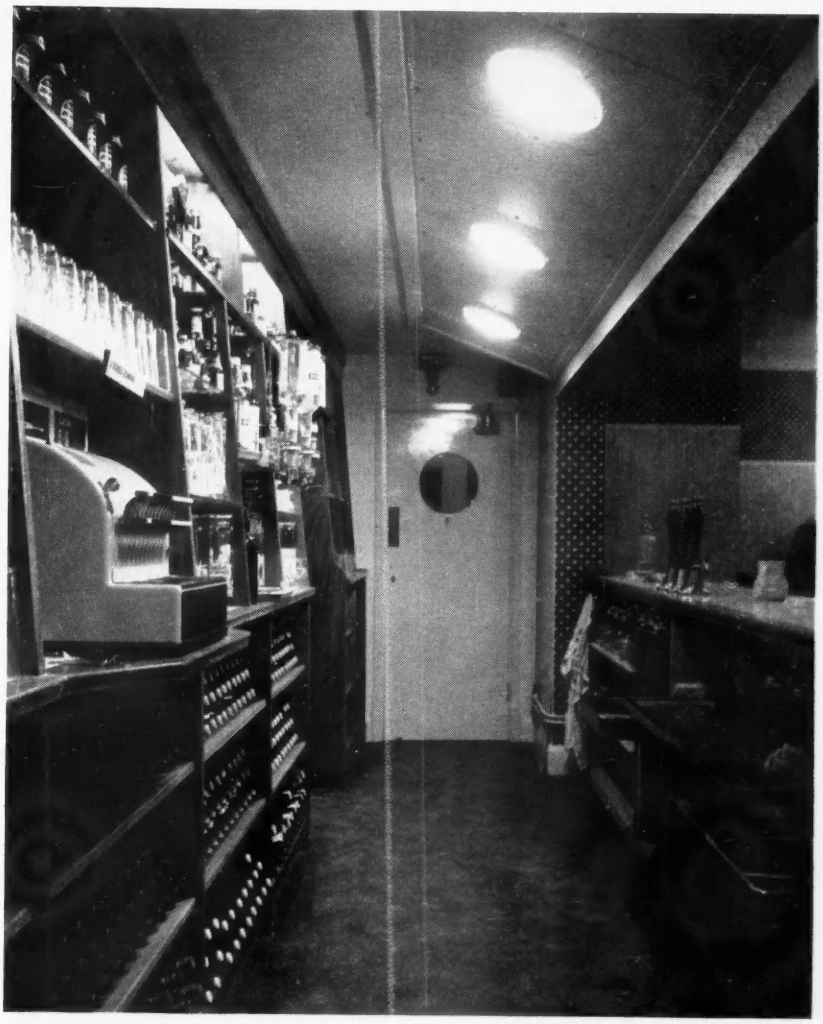
GROUND FLOOR PLAN

Scale: 1 in = 32 ft.

Public bar

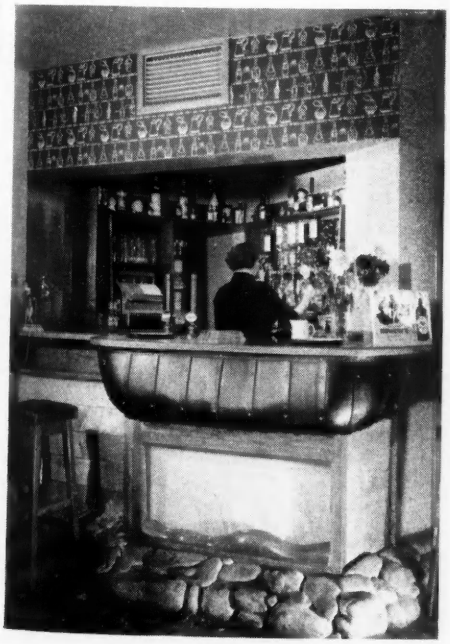
Subcontractors & Suppliers:—

Structural steel, Joseph Parks and Son, Ltd.; roof tiling, C. Walsh Graham, Ltd.; vertical DPC, Ragusa Asphalte Paving Co., Ltd.; steel windows, W. G. Kaleyards, Ltd.; heating and ventilating, G. N. Haden and Sons, Ltd.; electrical, Hartley Installation, Ltd.; woodblock flooring, Hollis Brothers; external cement finish, Tyrolean; plinth bricks and floor tiles, Dennis of Ruabon, Ltd.; bar counters and back fittings, the builder; beer engines and furniture, Gaskell and Chambers, Ltd.; paving, Noelite, Ltd.; refrigeration, (barrel store only), Bland Brothers (Electrical), Ltd.; beer cooling equipment in the backfittings, Refrigeration (Western), Ltd.; painting and decorating, W. G. White; engraved green glass panel, Pilkington Brothers; sanitary fittings and wall tiles, Brittain Adams and Sons, Ltd.; external lettering, Harry Heath (General Advertisers), Ltd.



Fittings in the public bar

The 'Coracle' bar in the smokeroom



The lounge bar

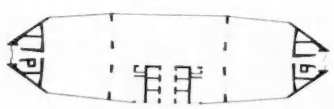
'Coracle' Inn, Shrewsbury

PIRELLI SKYSCRAPER, MILAN

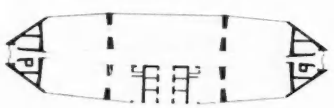
Architects : GIO PONTI,
A. FORNAROLI, A. ROSELLI,
G. VALTOLINA, E. DELL'ORTO

Engineers : P. L. NERVI, A. DANUSSO

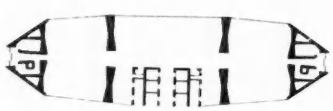
THIS new skyscraper now being built in Milan is to be the administrative headquarters of the Pirelli rubber company. The main part of the building rises 32 storeys above the street and has three floors below ground level. On plan 230 ft. long and 55 ft. at its widest part, it is 430 ft. high. The tower is grouped with three- and four-storey buildings which include an auditorium, and it is surrounded by an open space which will accommodate 2,000 cars. The foundations are mass concrete, floors are prestressed concrete beams with an *in-situ* slab, wall infilling is almost entirely glass. The piers taper in two dimensions as they rise through the building, becoming very thin at the top; each pier splits in two after ground floor level.



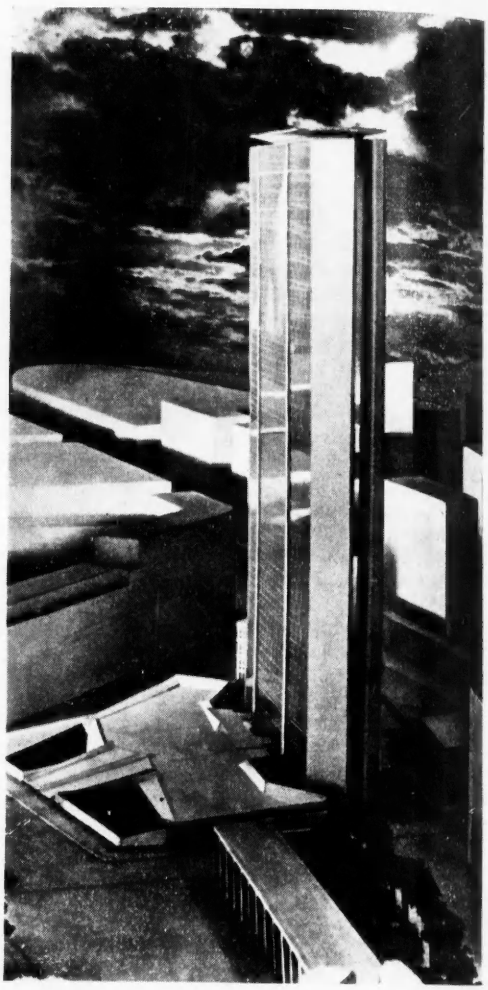
PLAN AT TOP FLOOR LEVEL



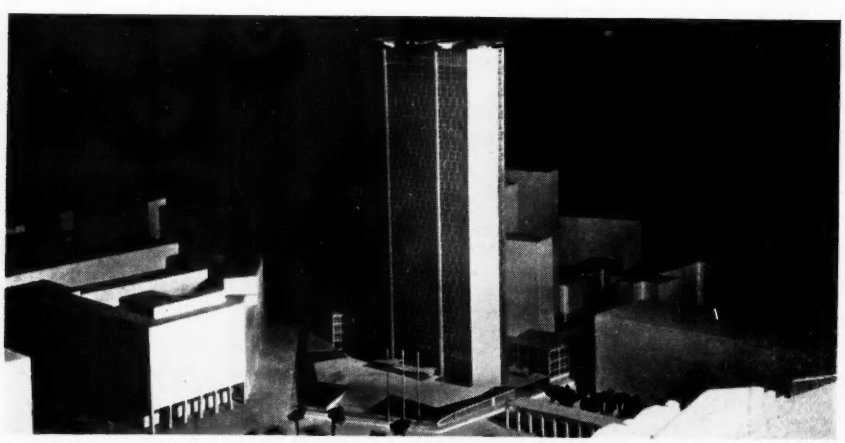
PLAN AT THE CENTRE OF THE TOWER



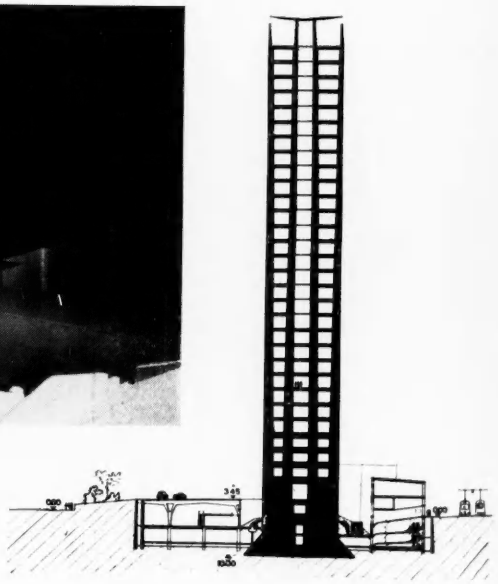
PLAN AT GROUND FLOOR LEVEL



The model at night



The model, showing the skyscraper in its environment



CROSS SECTION

News of the Week

RIBA Timber Symposium

A SYMPOSIUM on 'The Constructional Use of Timber' will take place at the RIBA on April 16, at 6 p.m. Mr. Thomas Mitchell, MBE, BSc, will preside. The subject will be dealt with under the following headings:—'Houses and Flats,' Mr. A. W. C. Barr, ARIBA; 'Schools and Other Buildings,' Mr. J. C. Stillman, ARIBA; 'Building Systems,' Mr. R. T. Walters, ARIBA; 'Economics, with special reference to lamination and prefabrication,' Mr. R. M. Hemmings, of Samuel Elliott and Sons (Reading), Ltd.; 'External Finishes,' Mr. A. C. Oliver, of the Timber Development Association. After the speakers, there will be a general discussion from the floor.

Finnish Architecture

THE RIBA's exhibition of Finnish architecture, which opened at 66, Portland-place, W1, yesterday, will be the subject of a broadcast talk by Mr. J. M. Richards, ARIBA, in the BBC's Third Programme at 7.45 p.m. to-night (April 12). The talk, entitled 'Finland—the Best of Both Worlds,' is in the 'Prospect' series. The talk will be repeated on April 16. Next Thursday, April 18, Mr. Alvar Aalto, who received the RIBA Gold Medal for 1957 last Tuesday, is to give a talk in the Third Programme, in which he will discuss his views and the present outlook for architecture.

Solid Fuel Storage

A REVIEW of the problems of delivery and storage of solid fuel in London flats and suggestions for overcoming them are contained in a report published on April 8 by a joint committee of the London regional committee of the Coal Utilisation Council and the London branch of the Institute of Housing. The report deals with trends in flat construction, coal trade practice in the delivery of fuel, access to flats, stairs, passageways and lifts, and questions of fuel storage. Among the recommendations is a suggested conference (arranged for May 9 at the Institution of Civil Engineers, 2.30 p.m.), to discuss the finding of the report and to make recommendations for action by housing authorities and the building industry to improve fuel storage and delivery facilities.

Cathedral Consultancy

MR. GEORGE G. PACE, FSA, FRIBA, of 18, Clifton Green, York, has been appointed Consultant Architect to Peterborough Cathedral. The appointment became vacant recently upon the death of Mr. L. T. Moore.

A Family Tradition

THE Mayor of Maidstone, Mr. F. Leslie Wallis, OBE, JP, has been appointed an alderman of the council of this county town. This makes the third successive generation of the Wallis family to be so honoured.

Subsidence Protection for Church

A CONCRETE RAFT is to be placed by the National Coal Board under Arnold Parish Church, Nottingham, to protect it against mining subsidence. The vicar, Rev. R. Collier, says in his parish magazine, 'This will involve the closing of the church for a period of from six to nine months, probably from February 1958 onwards. It will mean that the church will be stripped entirely—organ, floor, pews, and possibly windows and roof.'

Professional Announcement

MR. C. S. KIMPTON, FRIBA, has taken into partnership MR. E. J. CAMPLING and MR. R. ILIFFE, and will continue to practise from his present address, Mount Lodge, Station Parade, Sunningdale, Berks., as C. S. KIMPTON & PARTNERS.

FROM 'THE BUILDER' OF 1857

Saturday, April 11, 1857

TRAMWAY STEAM OMNIBUSES FOR WORKING PEOPLE. — A correspondent, 'Turntable,' suggests, amongst other ideas connected with metropolitan and general improvement, the laying down of common T rails, rib downwards, between two blocks of the street granite, and the formation of omnibus engines to carry 100 persons each, or more, and to run from 5 o'clock in the morning, in various directions, at fares of say 6d. for 12 rides, varying from four or five miles radius from the General Post Office to lesser distances, and running at the rate of six miles an hour without stoppage; the floor of the carriage to be only 6 in. or so from the ground, with a footboard or step all round, so that workmen might step in or out from the kerb as the carriage passed close to it.

COMING EVENTS

MONDAY, APRIL 15

RIBA.—Library Group meeting. 'Some Nineteenth Century Towers.' By F. I. Jenkins, MA, ARIBA. 66, Portland-pl., W1. 6 p.m.

DESIGN & INDUSTRIES ASSOCIATION AND 'THE SUNDAY TIMES'.—Furnishing Exhibition 'Make or Mar?' Charing Cross Underground Station. 10 a.m. to 10 p.m. (except Sundays and Easter Holidays) until May 4.

TUESDAY, APRIL 16

RIBA.—Symposium on 'The Constructional Use of Timber.' Speakers: A. W. C. Barr, ARIBA; J. C. Stillman, ARIBA; R. T. Walters, ARIBA; R. M. Hemmings, of Samuel Elliott & Sons (Reading), Ltd.; A. C. Oliver, of the Timber Development Association. General discussion follows. 66, Portland-pl., W1. 6 p.m.

THE COMBUSTION ENGINEERING ASSOCIATION AND THE SMOKELESS FUEL FEDERATION.—Two-day conference on 'The Application of the Clean Air Act to Private Dwellings and Industry.' Queen's Hotel, Birmingham. 10 a.m. (Continuing until April 17.)

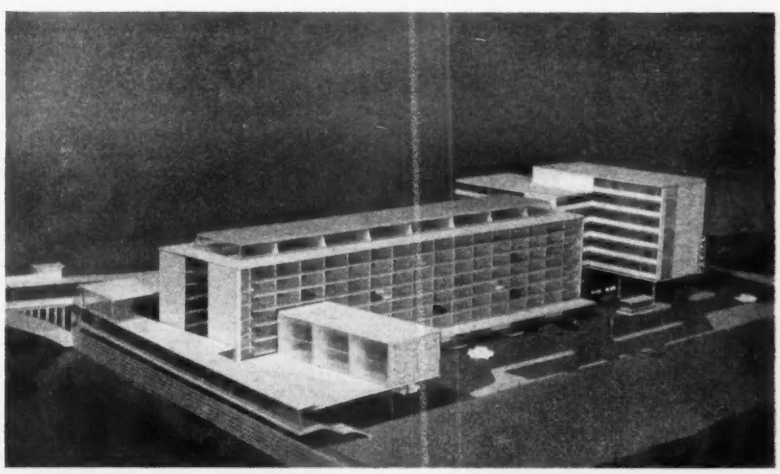
INSTITUTION OF PUBLIC HEALTH ENGINEERS.—'The Effect of Mining Subsidence on Public Health Engineering.' By R. J. Orchard. Caxton Hall, SW1. 6 p.m.

WEDNESDAY, APRIL 17

RICS.—General meeting of quantity surveyors. 'Elemental Bills.' By E. R. Parrinder, FRICS. The Hoare Memorial Hall, Gt. Smith-st., SW1. 6 p.m.

FACULTY OF ARCHITECTS AND SURVEYORS.—Annual meeting, followed by showing of films on the oil industry. 68, Gloucester-pl., W1. 6.30 p.m.

LONDON BUILDING & ENGINEERING CONTRACTORS ACCIDENT PREVENTION GROUP.—Annual meeting, Safety Centre, Horseferry-rd., SW1. 2.30 p.m.



'AUTOSILO' GARAGE FOR LONDON.—A model of the proposed multiple development scheme to be carried out on a site bordered by Upper Thames-street and the River Thames, near Southwark Bridge, in the City of London, for which the architect is Mr. C. Edmund Wilford, FRIBA. The main feature of the scheme is the 'Autosilo' garage, to accommodate 510 cars, with covered space for a further 70. A motor service and repair station would also be provided and two showrooms. In addition the scheme comprises a six-storey office block; four maisonettes; a large restaurant overlooking the Thames; and a glass-enclosed riverside walk. The 'Autosilo,' a Swiss invention, has been designed to handle 250 cars in 30 minutes at peak periods; it is a mechanical garaging system by means of which each car (which can be left locked) is collected on a pallet and automatically lifted and deposited in an appropriate compartment. The average time to garage a car is one minute. Town planning permission has been granted for the project, and negotiations are in hand with the City Corporation for acquisition of the site

Fixed Price Contracts

Minister Calls for Extension of System

A CALL for an extension of the system of fixed price contracts was made by THE MINISTER OF WORKS, Mr. Hugh Molson, PC, MP, when opening the exhibition of the Brixton School of Building on Monday. This was one of four points made—the others being the need for planning building projects in full detail; improved managerial techniques; and the placing of sub-contracts on a fixed price basis, all sub-contractors (including those nominated by the architect) being under the control of the main contractor.

Said Mr. Molson: 'There could be no more suitable place for me to speak on the present state of the building industry and its future prospects than at the Brixton School. From the beginning this School has emphasised "The Oneness of Building."'

There had been remarkable unanimity in post-war committees as to the steps needed if the industry was to achieve as high a standard of efficiency as it could, said Mr. Molson, who added: 'The first trouble is that buildings are frequently started before they have been planned in full detail. I know that many building owners are impatient to see work start. If they were a little more far-sighted, they would be only interested to know when the work would be completed. It always results in increased costs and often in a less satisfactory job being done when work begins on the site before all the drawings have been completed down to the last detail.

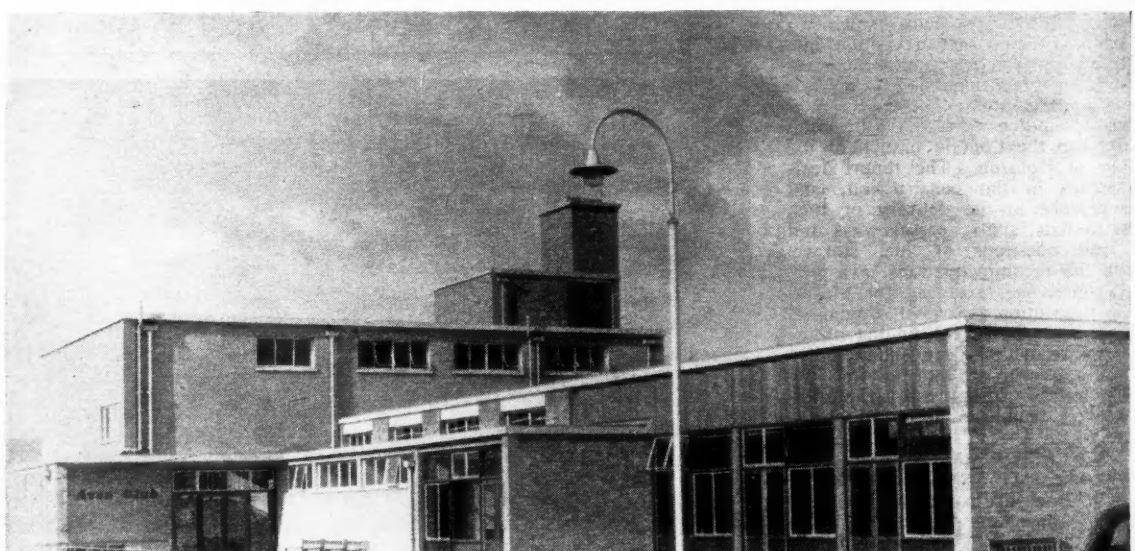
'Second, the time has now come when there ought to be far more fixed price contracts. If complete drawings down to the last detail are provided by the architect, many builders are now prepared to make a fixed price tender without variation clauses relating to increased costs of labour or materials. I am sure that we shall not get back to good pre-war practices and lower building costs until fixed price contracts become the rule with only few exceptions.

'In the third place, this procedure should enable far more complete planning and organisation by the contractor as well as closer supervision of work. Money spent on supervision is never, I am sure, wasted. Time and progress schedules, which of course are only possible when the whole job has been pre-planned, are essential for efficiency and close control of costs.

'Fourth, sub-contracts should as a general rule be open to tender and should normally be placed on a fixed price basis. Sub-contractors, including those nominated by the architect, should be under the control of the main contractor.'

What he had indicated as necessary to increased efficiency in the building industry would necessarily make further demands on a school of building like Brixton. The need for complete plans to be prepared before work started would require an increased number of skilled architectural draughtsmen. Similarly in the case of supervision. 'I understand,' said the Minister, 'that the School is developing management study at a still higher level, and I should like these matters to receive the attention of the Joint Advisory Committee of Architects, Quantity Surveyors and Builders. It is, I know, already considering how to co-ordinate educational arrangements at both pre- and post-graduate levels under the chairmanship of Mr. Harvey Frost, a former President of the NFBTE.

Among those present at the opening were the Mayor and Mayoress of Lambeth; Mr. H. J. Adams, OBE, chairman of the school governors, who introduced Mr. Molson; Sir Edward Muir, Permanent Secretary, Ministry of Works; Mr. R. G. Norman, vice-chairman of the governors, who moved the vote of thanks to the Minister; Mr. H. Weaver, president of the Amalgamated Union of Building Trades Workers; Mr. N. S. Farrow, MBE, vice-president, LMBA; Mr. G. Mavor, senior assistant education officer, LCC; and Mr. D. A. G. Reid, principal of the school.



AVON WORKS, BRISTOL.—Seen above is the office block, canteen and boiler house recently completed for Metal Agencies Company, Ltd., at their Avon Works, Bristol, to plans by Mr. C. Roy Beechcroft, ARIBA. The builders were Wm. Cowlin & Son, Ltd., of Bristol, 2

SOCIETIES

COVENTRY SOCIETY OF ARCHITECTS

Annual Dinner and Dance

COVENTRY'S attraction as a centre of architecture and planning was mentioned by MR. W. G. SEALEY, ARIBA, chairman of the Coventry Society of Architects, speaking at the society's annual dinner and dance in the Hotel Leofric. The city, he said, had become 'something of a Mecca' for the world's architects, planners, and students.

'We have many of the people here who are playing their part in the planning and construction of what many authorities consider to be an outstandingly successful example of city rebuilding and redevelopment,' continued Mr. Sealey, who proposed the toast 'The City of Coventry.'

Referring to the reconstruction in Coventry, ALDERMAN MRS. HYDE, the Deputy Mayor, who replied to the toast, said: 'I did oppose on the council the building of the new Cathedral, but now I am glad to see it going up. It is in keeping with the work you planners and architects are doing in rebuilding this great city. Yours is a sacred heritage.'

COUNTY COUNCIL CHIEF QUANTITY SURVEYORS

New Society Formed

THE inaugural meeting of County Council Chief Quantity Surveyors, representative of English and Welsh authorities, was held in Nottingham on March 29. It was unanimously agreed that the proposed society be formed. The following provisional committee was elected and invited to prepare a draft constitution:—

Chairman: M. F. Rice, FRICS (London).

Vice-Chairman: C. M. Nott, ARICS (Hertfordshire).

Secretary: J. A. Denton, ARICS (Lincolnshire—Holland).

Treasurers: T. West, AIQS (Lincolnshire—Kesteven) and C. Bullock, ARICS (Lincolnshire—Lindsey), co-opted.

It is intended that the next meeting, for full discussion on aims and objects and adoption of the full constitution, shall be held in London in the latter part of May, or June.

JUNIOR ORGANISATIONS

Encouragement for Joint Meetings

FOLLOWING a recommendation from the Joint Advisory Committee on Training, the Joint Consultative Committee of Architects, Quantity Surveyors and Builders is taking steps to encourage, throughout the country, the holding of joint meetings, discussions, debates, etc., by the younger qualified members of the building team.

As stated in our last issue, an informal liaison committee has been set up consisting of the chairmen and hon. secretaries of the RICS Junior Organisation (Quantity Surveyors' Committee) and the Institute of Builders' Licentiate Discussion Club, with representatives of the RIBA. Mr. David Waterhouse, ARIBA, has been elected chairman and Mr. R. C. Greaves, ARICS, hon. secretary. The liaison committee's terms of reference are:—

(a) To establish liaison between the three bodies at 'junior' level; and

(b) To proceed informally to further the holding of joint meetings, commencing in the London area.

Arrangements are in hand for the latter part of the current session and for the early part of the session 1957-1958.

VISUAL EDUCATION

Prizes Awarded for Essays

MR. LESLIE HARDERN, BA, FRSA, presented prizes awarded for the best entries in the Council for Visual Education's 1956 essay competition, the subject of which was 'Beautiful Buildings I have Seen,' at a ceremony held at the Building Centre, 26, Store-street, WC1, on March 21.

During the afternoon a model of St. Paul's Cathedral, lent by Sir William Holford, was on view, on which Mr. John Summerson, CBE, FSA, ARIBA, described and answered questions. The proceedings were filmed for BBC television. Prize-winners were:

Class I (10-13 years).—First, C. S. Coventry, Alloa, £4; second, H. V. Sweet, Maidenhead, £2. Class II (14 and 15 years).—First, L. Petty, Lincoln, £4; second, L. G. Smith, Merstham, £2. Class III (16 years and over).—First, J. H. Champness, Hackney, £4; second (shared), P. R. Maidwell, Coventry, and R. J. Castle, Wimbledon, £2 each.

BIRMINGHAM HOUSING

Concessions to Builders

UNDER pressure from the Birmingham Association of Building Trades Employers, Birmingham Corporation has given way on several points concerning municipal housing contracts.

Several of the points raised by the builders, it was stated in the report which was submitted to the City by the general purposes committee on April 9, will involve no risk and will save the Corporation considerable sums.

It is proposed that the provision of a bond or a cash deposit shall be discontinued for a trial period of 12 months. The builders stated that the cost of these bonds was always ultimately borne by the Corporation. During 1956-1957 the sum was estimated at £17,000.

In giving way on bonds, however, the general purposes committee states that it is not prepared to dispense with retention money. The total retention money now held by the Birmingham Municipal Bank is £1,200,000.

For contracts after July 1 next, it is not proposed to pay interest upon retention money. This question will also be reviewed in 12 months' time.

OBITUARY

W. J. Freeman, ARIBA

THE death has occurred of Mr. W. J. Freeman, ARIBA, of Messrs. Howell, Freeman, and Batten, architects, of 17, Blagrave-street, Reading. He was 75.

Mr. Freeman came to Reading in 1906 as manager to the late Mr. W. Roland Howell; on his death in 1940, he went into partnership with Mr. Batten. He retired last year. Among buildings he designed in Reading are St. Laurence's Hall and Vincent's motor show-rooms.

COMPETITION NEWS

The Replanning of Berlin

THE Government of the Federal Republic of Germany and the Senate of Berlin invite entries for the international town planning competition 'Hauptstadt Berlin' (Capital Berlin). Brief details were given in last week's issue.

Open to all architects or town planners living in Europe and such outside Europe who were born in Germany, the competition is in line with the German 'Principles and Rules Governing Competitions' (GRW 1952) and the 'General Terms for International Competitions in the Field of Architecture and Town Planning' (International Architects' Union—UIA). The terms of the competion were agreed upon by the appropriate committees of Bund Deutscher Architekten and the International Architects' Union.

Prizes offered are: One first—*30,000 DM. Two second—20,000 DM-40,000 DM. Three third—10,000 DM-30,000 DM. Four works to be acquired each at 5,000 DM-20,000 DM.

Expert members of the jury are: Alvar Aalto, Helsinki; Otto Bartning, Darmstadt; C. van Eesteren, Amsterdam; Walter Gropius, Cambridge/Mass., USA; Werner Hebebrand, Hamburg; Rudolf Hillebrecht, Hanover; Johannes Rossig, Bonn; Max Steinbiss, Bonn; Hans Stephan, Berlin; Pierre Vago, Paris; Edgar Wedepohl, Berlin.

The papers basic to the competition can be obtained from March 30 at the Senator für Bau- und Wohnungswesen, Berlin-Wilmersdorf, Württembergische Strasse 6-10, against payment of a protection fee of 100 DM. This amount is to be paid in Postal Cheque Account No. 58 Berlin West with Landeshauptkasse Berlin in favour of HUA B 6100/57 HSt. 199 beforehand. The fee will be returned if the design submitted corresponds to the terms of the competition or if the papers basic to the competition have been returned intact by June 30, 1957. Final date for submission: November 30, 1957 (inclusive), to the Senator für Bau- und Wohnungswesen, Berlin.

Solar House, Arizona

THE Association for the Utilisation of Solar Energy is proposing to have a house built in Arizona with the intention of encouraging the public's interest in the utilisation of solar energy. The competition is anonymous and in one stage.

The Jury of Assessors includes Senor Carlos Contraras, Signor Pietro Belluschi, Mr. Tom Creighton, Mr. Nat Owings, Mr. James Elmore.

Premiums: 1, 2,500 dollars; 2, 1,500 dollars; 3, 1,000 dollars; 4 and 5, 500 dollars.

Further information from Mr. James M. Hunter, AIA, 1126, Spruce-street, Boulder, Colorado, USA.

Both the above competitions have been approved by the International Union of Architects.

*Approximately 11.70 Deutsche Marks to the £.

IN PARLIAMENT

By Our Parliamentary Correspondent

The Expanded Nuclear Power Programme

THE Minister of Power put the total cost of the Government's expanded programme for power from nuclear and conventional methods between now and 1965 at £3,350m. when speaking in a debate on the problems arising from the future development of fuel and power industries in the House of Lords on April 2.

LORD MILLS said that the cost of providing 6,000 megawatts from nuclear power stations by 1965 was £919m. This consisted of £742m. for the cost of the stations, and £177m. for the initial uranium fuel. The cost of conventional stations coming into operation between 1961 and 1965 was £316m., and the associated transmission lines would cost £225m. That gave a total of £1,460m.

There was also a programme of conventional stations for the period between now and 1960, which would cost, together with the transmission lines, £630m. Before the end of 1965 there would be an expenditure of £220m. on nuclear and conventional stations which would come into operation after that date. The total expenditure on bulk transmission and generation until 1956 would be £2,310m. In addition it would be necessary to provide another £1,000m. for local distribution and an extra £40m. for working capital. That gave a total cost of £3,350m.

He emphasised that he had no wish to depart from the undertakings he had given to preserve, as far as possible, the amenities and rights of the people. As this was a beautiful island it was difficult to do anything without interfering with beauty spots. Every care would be taken by the authorities. It was not true that the Minister was a dictator who said: 'This shall go here; this shall go there.'

District Heating

LORD LUCAS OF CHILWORTH had asserted that the Minister was building up an antagonism by the ham-handed methods of his department. It was not known what the power policy of the Government was, or why it was necessary to have all the new atomic power stations south of a line drawn roughly from the Severn to the Wash. The power stations would be sited in some of the most beautiful parts of the country. Why was that? They would be no more dangerous than a gas works or coal mine, and if they were sited in built-up areas the hot water pumped out at the rate of 25 million gallons an hour from each station could be used for the district heating of a large city, instead of being wasted in increasing the heat of the sea by 15 degrees.

LORD GLYN had some comments to make about siting and design. He said that they had been told that Sir William Holford and others would be consulted about design, but it was understood that they had never been consulted. It was important when architectural features were being developed that advice should be given by people other than engineers. At Calder Hall there were a number of chimneys, but no one knew why that was necessary. Architects should be brought in early and informed of what was necessary technically so that they could see how far the design could be made less ugly than undoubtedly Calder Hall was. If one talked to an engineer and said a power station was to be put up he would believe it was impossible to do that without having chimneys. That might be true about conventional stations, but it was doubtful whether it was true about nuclear stations.

A number of experiments were being carried out about the metals to withstand high temperatures which were the basis of all the new development of nuclear power stations. It might well be that something other than metal might be necessary to withstand those temperatures, and until something more was known about the required medium those responsible were right in saying that at this stage it would not be safe to locate stations in the middle of densely populated districts.

There were some places where several power stations could be grouped together, notably along the Pembroke coast. If the transmitters could be obtained power could be delivered to the centres of consumption at a much cheaper rate than it could if separate stations were erected throughout the country and there was not readily available the water which would be required for them.

LORD MILLS said that this suggestion about grouping power stations would be considered by the electricity authority, but he would not like to say that it was a possibility. The Central Electricity Authority, in their primary concern to avoid national parks and places of outstanding beauty, would have early consultations with the Royal Fine Art Commission and the National Parks Commission.

If and when it was possible to consider putting nuclear power stations in build-up areas the advantage of district heating systems would be taken into consideration. Technically, it was possible to put transmission lines underground, but changing from underground to overhead lines was not feasible. It would be necessary to have more power stations, with booster stations every 10 miles, to overcome the loss of power through underground cables. The cost for one mile of overhead supergrid was £25.000 and for one mile of underground supergrid it would be £300,000.

He had been informed that nuclear power stations were inherently safe and that the system of monitoring was such that the escape of radioactive material was extremely unlikely. But these stations contained highly toxic materials which would be dangerous if they escaped. It was thought right, for the time being, to have remote siting, even if it was possible to put the stations on other sites.

Co-operation with OEEC

DETAILS of the five projects on aspects of building practice on which the Department of Scientific and Industrial Research was collaborating with OEEC were given in the House of Commons on April 2 by MR. HARMAR NICHOLLS, Parliamentary Secretary, Ministry of Works, who was also asked to what extent in any of those aspects common practice in the United Kingdom industry lagged behind what the experts were advocating abroad.

The five projects and their details announced by Mr. Nicholls are:

Modular Co-ordination.—The project on modular co-ordination is in two parts, the first of which has been completed and consisted of a survey of the work on modular co-ordination done in the participating countries, together with a study of the possible advantages that this work may have achieved. The report on this first part of the project was published by the European Productivity Agency at the end of 1956, and is on sale in this country through the Stationery Office. The second stage, which is now in progress, will cover the building in the various participating countries of houses, etc., on modular principles. The design work has only just begun and there is no progress to report.

Prefabrication in house building.—This project was carried out by a rapporteur in Western Germany, receiving information from the eight participating countries. The Building Research Station acted as the collector of the information from various sources in Great Britain. The full report has not yet been published, but there seems little doubt that, in this field, the United Kingdom has more experience than any other country.

Methods of organisation on building sites.—This project is being carried out by the Building Research Station on behalf of the European Productivity Agency. An officer of this station is visiting a number of European countries to examine the methods of organisation used in those countries. He has had discussions with the national associations of contractors and of employees, and with a number of individual firms, and visits as many building sites as possible in the time available. It is expected that the survey will be completed by the end of this year.

The mechanization of certain building operations.—This project is being undertaken by the director of the West German Building Research Organisation, and the Building Research Station in the UK has undertaken to collect information from the industry in this country. The report ought to be available by the end of this year.

Production and distribution of concrete on building sites.—A French rapporteur has been appointed to carry out this project, and the Building Research Station in the UK will provide the information from this country. The project will probably be completed by the end of this year.

MR. PARTRIDGE, who asked the original question, also asked whether any definite conclusions had been reached on any of these aspects and what was being done to keep British builders informed of the recommendations of the various committees.

MR. NICHOLLS.—No definite conclusions have yet been reached on the five projects. It is expected that reports will be published in due course. The information obtained by the Building Research Station in working on these projects will be made freely available to the building industry in this country in publications and lectures.

WING COMMANDER BULLUS asked about the proposed establishment of a Central Mineral Processing Laboratory.

MR. HARMAR NICHOLLS: Discussions between the Department of Scientific and

Industrial Research and the principal scientific and industrial interests concerned are continuing.

MR. FREDERICK WILLEY also asked what progress had been made about the National Scientific Reference and Lending Library projects.

MR. HARMAR-NICHOLLS said that the DSIR had formed a unit to carry out the lending library project. The unit concerned would move into temporary accommodation in London early in April and a start had been made on the collection of foreign scientific and technological literature. At a later stage it was hoped that full lending library facilities would develop. The erection of a suitable building for the National Reference Library of Science and Invention was being considered in conjunction with a project for building a new Patent Office.

Repairs to Big Ben Clock Tower

THE repairs to the Big Ben clock tower during the last 18 months have cost £26,000 more than the original estimate of £40,000, according to a reply in the House of Commons by MR. HARMAR NICHOLLS, Parliamentary Secretary, Ministry of Works, on April 2. He said that it had not been possible to make a full inspection and assess the extent of the war damage and general wear until the scaffolding had been erected. General repairs to the tower on this scale had not been made since it was built [it was opened in 1854]. The bells were repaired in 1934 at a cost of £300, but the cast iron roof had not been painted since 1878.

He said, in reply to another question, that the scaffold was erected between January and June, 1955, and the repairs completed in February this year. The scaffold was the Ministry's property, but the hoist was hired at a cost of £21 a week. The cost of removal of the scaffold will be about £1,600.

The Economic Survey

TOTAL building output in 1957 is unlikely to be less than in 1956, although the reduction expected in the housing programme should be more than offset by the amount of other new work completed for public authorities.

This conclusion is reached in the Government's *Economic Survey*, 1957 published on April 2 (Stationery Office, price 2s.)

Credit restrictions, it is pointed out, seemed to have created a slight reduction in the demand for industrial building and for miscellaneous work, but there was no evidence that output in those sectors would be much below that in 1956.

Building costs were about 4 per cent. higher at the end of 1956 than at the same period in 1955, mainly because of higher earnings and increases in the price of some building materials and in the cost of fuel and transport.

The load of building and constructional work had become rather more than the building and civil engineering industries could handle efficiently at the end of 1955, particularly in the industrial areas. That overload had led to some shortages of materials and labour. The year 1956 was one of stabilisation in which that excess load was gradually reduced to leave the industry once more in balance.

Total output in 1956 was about 6 per cent. above that of the previous year. This arose from a high level of employment—there being an increase of 19,000 employees in the industry, from 1,472,000 to 1,491,000 during the year—with an increase of output a man.

Housing, like other activities, was affected by the measures designed to restrain credit, and in the second half of the year there was some reduction in the rate at which privately built houses were being started. That, together with a further decline of 26,000 in the number of houses started by local authorities, suggested that the level of house building would be somewhat reduced in 1957.

The total number of houses completed dropped from 317,000 to 300,000. Within that total the number built by private enterprise rose from 114,000 to 124,000.

More private industrial building was done than in 1955, although the volume of new work started was about 10 per cent. less. For the year as a whole almost £60m. more of industrial building work was done. The amount of private building for commercial and miscellaneous purposes increased by about £30m.

In the public sector local authority non-housing programmes were in general restricted to about the 1955 level, but more work was carried out on educational, building, hospitals, roads and power installations.

Home supplies of steel rods and structural steel, although greater than in 1955, were again inadequate to meet the demand and imports had to be increased to avoid serious delays on sites. Brick deliveries were slightly less than in 1955, reflecting the fall in housing work, but the demand for cement increased, to absorb rather more than the 250,000 ton increase in home production.

During the year work began on the country's largest single power station, a 1,000 megawatt station with 200 megawatt generating sets at High Marnham on the Trent near Newark, and the Scottish Electricity Board had applied for consent to build a nuclear power station at Hunterston, near Largs, in Ayrshire, which was the largest nuclear power station so far planned in the world.

Dealing with fixed investment the survey indicates that the rate of expansion began to slacken in 1956. The increase was estimated at £80m. at 1955 prices, compared with £160m. in the previous year. There was a switch in emphasis from plant machinery and vehicles to building.

Public investment in housing continued to fall while private building remained steady: altogether 300,000 new houses were completed during the year. Other new building rose by 9 per cent.

As in the previous year there had been a trend away from housing in the investment boom which continued during 1956 and toward industrial development. Pointing out that the nation's prospects depend mainly on the success in the expansion of exports, the survey adds that investment by private industry is likely to remain at its existing high level in 1957, and investment in the basic services of fuel and power and transport including new road construction is expected to rise.

OTHER BUSINESS

Planning Appeal Delays

MR. GEORGE THOMAS asked the Minister of Housing and Local Government why it took so long for an appeal against the planning decisions of local authorities to be heard; and what action he was taking to expedite the hearing of such appeals.

He also asked why there was a long delay between the hearing of appeals against planning decision by local authorities and the declaration of the Minister's decision.

MR. HENRY BROOKE, in a written reply on April 2, stated: The number of appeals received has risen sharply in the last few years. The 1956 figure was 6,699, compared with 3,441 in 1952. This has thrown a heavy load on to the inspectorate and other departmental staffs involved. By increasing the number of inspectors and reorganising the handling of the work, the time taken both to fix inquiries and to issue decisions after inquiries has been reduced. I am not yet satisfied, however, and efforts to improve the timetable will continue.

Housing Site, Gosforth

MR. MCKAY asked the Minister of Housing and Local Government if he was aware that Gosforth Council had sold to private builders land which they had previously bought out of the surplus funds of the housing revenue account for the purposes of their principal programme of council house building; and whether he would hold an inquiry into these actions.

MR. BROOKE stated in a written reply on April 2nd: I am aware that, with the consent of my predecessor, the Gosforth council sold some of their housing land which was surplus to their own requirements for the erection of houses by a private builder. I am considering a proposal by the council to apply part of the proceeds of the sale, together with surplus funds in their housing revenue account, to the discharge of outstanding compensation claims arising from the council's acquisition of land for housing.

River Thames Pollution

MR. DODDS asked the Minister of Housing and Local Government what progress had been made in dealing with the pollution of the River Thames; and what were the plans for the future to deal with the nuisance.

MR. BROOKE: The sewage treatment improvement programme which was approved on the advice of the Pippard Committee is making good progress. Further stages for which tenders are being invited this year include nearly £10m. worth of new treatment plant for the London County Council; £700,000 worth for the Middlesex County Council; and £600,000 worth for the West Kent Main Sewerage Board. I understand that the final reports of the Water Pollution Research Laboratory and the Pippard Committee are likely to be completed later this year.

Hospitals and Fuel Efficiency

MR. HORNBY asked the Minister of Health to what extent and by what means he was encouraging fuel efficiency in the hospital service.

MR. VOSPER, replying on April 1, said: Principally by making £9m. available in the

three years ending March, 1959, for the replacement of obsolete plant and equipment, and by giving guidance to hospital authorities on the best ways of using this money. Hospital authorities have also been urged to employ suitably qualified supervising engineers to take advantage of a newly-introduced scheme for training stokers, and to make use of the National Industrial Fuel Efficiency Service.

Derbyshire Development Plan

MR. CHAMPION asked the Minister of Housing and Local Government, what circumstances had caused the delay in approving the Derbyshire development plan which, in turn, was holding up essential road works in the Breaston area of Derbyshire, since it was said in 1954 that approval of the plan could be expected in the middle of 1955.

MR. BROOKE in a written reply on April 4, stated.—Development plans are dealt with, as far as practicable, in order of submission. Unforeseen difficulties encountered during consideration of plans submitted before that for Derbyshire prevented fufilment of the forecast given in 1954. I am sorry about this, but I hope I may be able to approve the Derbyshire plan before the end of this year.

BOOK

THE ARCHITECT IN PRACTICE. By A. J. Willis, FRICS, and W. N. B. George, BArch, ARIBA. (Second Edition, revised.) Pp. 272. (London: Crosby Lockwood and Son, Ltd.) Price 20s.

THIS textbook has achieved a second edition by reason of its sound information, its orderly and comprehensive arrangement and its clear writing. It is particularly welcome because it represents the combined knowledge and experience of a surveyor and an architect. No architectural student about to qualify need be left in any doubt as to the serious and heavy responsibilities that he will incur when he begins practice; but the paternal advice and worldly wisdom offered to him here is given in a friendly and sympathetic way. Such ticklish matters as the need for explaining to a client why the employment of a quantity surveyor and specialist consultants is necessary are clearly dealt with. The complicated procedure involved in approvals, controls, by-laws, contracts, certificates, etc., is patiently explained. The tyro is reminded that: 'it is not so easy to be careful with other people's money as with one's own, but it is equally important; and that although some older architects have risked disregarding this golden rule, a young practitioner dare not. Two chapters deal with legal matters, in so far as they affect the architect's position. Valuations, easements of lights, and sundry other topics are excluded as being too complex for treatment in a book of this nature. The long section on 'office organisation' is full of sensible suggestions; and the numerous model forms and documents printed as appendices are invaluable. Revision since the first edition was published in 1952 is mainly confined to changes caused by subsequent legislation and procedure.

MARTIN S. BRIGGS.

'Construction in Moscow'

Experts Answer Clerks of Works' & Foremen's Questions on Film

A FILM entitled 'Construction in Moscow' was shown to a joint meeting of the three associations which look after the interests of London foremen and clerks of works—the London Regional Council, the London Association and the Provident Institution—at a meeting at Church House, SW, on April 3. There was an attendance of over 200, many of whom put questions to a team of experts, all of whom had been to Russia in recent years.

Mr. J. H. Forshaw

Mr. J. Mellor, on behalf of the organisers, introduced the chairman of the panel of experts, Mr. J. H. Forshaw, CB, FRIBA, Chief Architect and Housing Consultant, the Ministry of Housing and Local Government, who in turn introduced the other members of the team—Messrs. M. W. Bennitt (deputy Secretary the Ministry of Works), Mr. R. C. Bevan (The Building Research Station) and Mr. F. R. Yerbury, OBE, Director of the Building Centre.

Made in 1951, the film showed the changing face of this great city whose narrow winding streets had been replaced to a large extent with broad straight highways and whose boundaries were stretching out farther and farther from the city centre. Construction work in Moscow's Underground showed new sections of the vast network of stations being completed. Since 1935, when the first line of the Metro came into operation the system has grown until now nearly 40 lines were spreadeagled under the city. Stations are well lit, and gleaming marble and bronze pillars add colour and beauty to their businesslike appearance.

Housing Assembly Techniques

Latest techniques in housing construction were by far the most impressive part of the film. The foundations of some buildings took the form of massive concrete slabs transported from factories. Whole flights of stairs, complete ceilings and floors were assembled on the sites and while walls were going up in the upper storeys, the film showed how flats below were being equipped internally. Cranes were in abundant use on building sites and several were set up, not on the ground, but on metal columns which allowed the crane to move up storey by storey as the work progressed.

The laying of road surfaces in Moscow involving the use of as many as six steamrollers working at the same time was shown, as were the spacious, tree-lined squares and boulevards, which are an important part of the city's development.

Moscow's University

Among the many high buildings included in the film was Moscow's new university which is over 650 ft. high and contains 6,000 rooms for students, 150 auditoriums and hundreds of laboratories.

Commenting on the film afterwards, MR. FORSHAW said that he had been impressed during his visit in 1955 by the great activity in building, the wealth of resources being employed and the amount of manpower being used by the Russians. In his opinion, the Metro was over-ornate but magnificently clean, and overall it was much more impressive than those in London or New York.

'Building progress is staggering,' he went on. 'But obviously much of the film is good salesmanship. I do not wish to be uncharitable, but round the corner from many of these fine buildings are black spots—blacker than any we have in this country—but they are fast disappearing. As a planner I was tremendously impressed with their progress in the laying out of radial and arterial roads and the widening of streets. If a building is decrepit, down it comes. If it has life left in it they put the whole structure on rollers and move it back. Sites become the factories there, and components are assembled by great teams of men and women at a regular and rapid pace.

Questions and Answers

In the question and answer session which followed, members of the team were kept busy. Numerous queries on points ranging from whether tea breaks were allowed on sites there, to the standard of plumbing in Russian houses were answered concisely and, in some cases, humorously.

One questioner commented on the absence of scaffolding on the buildings shown in the film, adding that one of the questions the team might have asked on their visit was the percentage of accidents occurring on sites in Russia. It was answered that scaffolding was largely dispensed with on the sites in Moscow. Welding was used to an extent not known over here.

On the furnishing of lower-storey flats while construction on upper floors was still taking place, MR. YERBURY stated that he didn't think this really happened. MR.

FORSHAW, however, said that on one visit he had made to a site a team of women had been carrying out plastering work on the lower part of a block of flats opposite while flats above them were being completed. Overcrowding was responsible for much of the speed in installing tenants before the completion of work on houses.

MR. YERBURY stated that he had first visited Moscow in 1932 and again nearly three years ago. The progress made in that time had been astounding, and although there was still overcrowding the problem was not nearly so great as it had been. Flats, he added, were let to tenants at a very low rent and represented only a small proportion of the income of a working man. This rent was standard throughout the country, irrespective of income. Top men, however, were given additional perquisites such as better furnishings or a car.

Another member of the audience said that although the speed of construction shown in the film, with loads being hoisted double-decked, bricks being laid rapidly by teams of men, etc., was very impressive, did the team consider that the standard of workmanship was good? In answering, MR. FORSHAW said: 'We would regard the quality of the material used as magnificent but it is a tragedy that it is not handled better.' The standard of workmanship was by no means as good as that expected in this country but he thought that in time the Russians would get a better quality finish than they were doing at present.

The speeds claimed by the Russians in building had been staggering, he continued, and the team which he had led to Russia in 1955 had come to the conclusion that these claims were exaggerated. One case they had followed through was that of a school which was said to have been built in 83 days. It was a building four storeys high with accommodation for 800 pupils. So far as they had seen, the work on the outside of the school was crudely finished; inside, however, it was much better. Mr. Forshaw added that in view of the tremendous task before them, it might be that the Russians felt they had to be satisfied with what they could achieve in as short a time as possible. 'I don't think you would be satisfied with the results,' he said, 'and any architect would most certainly not be.' The team agreed, however, that the standard of craftsmanship was much higher in other parts of the country than in Moscow.

Organising the Building

So far as the planning of development in the capital was concerned, he went on, the city was divided into 13 areas each controlled by an architect's office. There was, of course, no private enterprise building and work on houses, schools and offices was sent out to contractors appointed to each district. Plans might be produced in Moscow by the authorities and sent out to contractors in provincial towns. Each region had factories of their own. The numbers of these in each area had not been made available to the team but they had been told that there were as many as 40 serving Moscow.

Weather Conditions

The effect of weather conditions on building progress in Russia was brought up by a member of the audience who said he couldn't imagine much work being done on high buildings in conditions which must exist in winter there. In reply MR. BEVAN said that work in the building industry on sites was absolutely seasonal. From the middle of March to October there was intense activity but during the freeze-up which followed the first rains in September work came to a standstill and most of the operatives took jobs in factories at that time.

In answering a query on the type of foundation existing where high buildings were put up, MR. BEVAN said that only on one occasion had he seen a building down to its foundations. In that case it was largely clay and gravel. They believed there was some attempt at bedding on the structure below.

Several members of the audience were interested in the team's disclosures concerning the widespread employment of female labour in the industry. Their status and to what extent they were employed in the heavier types of work interested one questioner. MR. YERBURY said that 60 per cent. of the workers in the industry were women. They were paid on the same basis as the men which was on a piecework rate. There was a great deal of overtime and they seemed to work extra hours just as much as the men. MR. FORSHAW said that some of the best plasterers he had seen were women and they also made expert crane drivers. Most of the machines in factories were tended by women. It was thought that the recruitment of women into the building trade in this country was not required and a bigger labour force unnecessary.

Role of Trade Unions

On the question of trade unions in Russia, MR BENNITT said that although there were trade unions these organisations were more concerned with the welfare of the workers than in the question of wages or disputes. One thing that the employees could not do was strike.

Another interesting point raised was whether in the planning of new developments in Russia the authorities could more or less do what they liked about vacating premises. Here it was stated that the procedure seemed to be much the same as that of this country Notice to a tenant was given, although the length of time given might be shorter, and alternative accommodation provided. There was no private enterprise so all-over planning was smoother. It was doubtful whether there was anything we could benefit from in their degree of preplanning.

The system of control of workmanship came up next and it was asked if the Russians had clerks of works, district surveyors, etc. In reply it was pointed out that the system of control was very strict and on each job there was a staff of supervisors and very strict foreman control.

The final questioner caused laughter among the audience when he asked if the Russian workers had tea breaks on building sites as we did in this country. The team members said that as far as they saw there were none and in any case soda water was the popular beverage.

The team was thanked by Mr. J. W. Tiller, and Mr. Forshaw in reply acknowledged the help given in arranging the programme by the Editor of *The Builder* (Mr. Ian M. Leslie).

Invited guests present included Mr. W. Kirby Laing (President LMBA), Mr. D. E. Woodbine Parish, Mr. Philip Smallwood, Mr. E. J. Dean, and Mr. Roger Stenning, Secretary LMBA.

HIGH BUILDING DEVELOPMENT

Proposals in Liverpool, Leicester and Glasgow

FOLLOWING UPON the recent announcement of the LCC's proposals for four 17-storey blocks of flats at Stepney and the £1¼ million scheme for eight 11-storey blocks at Southdene, Kirkby, for the Liverpool City Council (*The Builder*, March 29 and April 5), we learn that a contract for eight 10-storey blocks of flats for Leeds Corporation has been placed with William Townson and Sons, Ltd., of Bolton.

Considered in conjunction with Leicester's less lofty but equally impressive (848 dwellings, £1,356,656) Wharf-street redevelopment, these schemes suggest that a recent House of Commons statement that the Government's credit restrictions had 'killed slum-clearance,' errs on the side of pessimism.

English municipal endeavour, however, seems about to be overtopped by private enterprise in Scotland, if a proposal before Glasgow Corporation is approved. This is for a 20-storey block of 75 four-apartment flats, designed by Sam Bunton and Associates, of 7, Somerset-place, Glasgow, C3, for erection at Pollokshields, on the south side of the River Clyde. These flats, which will be of a 'luxury' type, are to be erected by John Lawrence and Co. (Glasgow), Ltd., of Blythswood, Glasgow, and are to be sold.

Soil Mechanics' Conference

Details have now been issued about the fourth international conference of the International Society of Soil Mechanics and Foundation Engineering, which is to be held in London from August 12 to 24, this year. The society has over 3,000 members in 29 different countries, though attendance at the conference is not restricted to members. The chairman of the organising committee is Dr. W. H. Glanville, director of the Road Research Laboratory, DSIR. The Institution of Civil Engineers have placed the Institution building at the disposal of the Society for the technical programme of the conference, and full details and application forms to attend can be obtained from the Society's secretary, Mr. A. Banister, OBE, the Institution of Civil Engineers, Great George-street, London.

Elemental Bills of Quantities

Report of RICS QS Committee

A COMMITTEE of quantity surveyor members of the RICS, appointed in June last to undertake a full examination of the subject of 'elemental' bills of quantities, has now reported. Their findings will be presented for discussion at a general meeting of quantity surveyors to be held in the Hoare Memorial Hall, Church House, SW1, at 6 p.m. on Wednesday next, April 17.

The report, published in full in the current issue of the *Chartered Surveyor*, states that there is, in many instances, a divergence of opinion on the use of 'elemental' bills generally, but that the weight of evidence leads the committee (which was under the chairmanship of Mr. R. L. Everest) to the following conclusions:

Conclusions

(1) If a cost analysis of one contract based on elements related to superficial floor area be considered a sound guide for the cost planning of another contract, the quantity surveyor can produce such analysis from a normal bill of quantities. The merits of this type of cost planning will be dealt with by the Cost Research Panel, who will no doubt emphasise the dangers inherent in the practice of using without the utmost care information obtained from an analysis of a previous job.

(2) (*a*) There is no general demand amongst the architectural profession for the use of 'elemental' bills of quantities, and it is clear that, for a very large number of jobs, they would be inappropriate. There would appear, however, to be a demand for this type of bill in certain quarters, and particularly in the case of projects of similar character, such as schools. If quantity surveyors are requested to prepare bills on an 'elemental' basis, it would be wise to obtain from firms invited to tender their prior agreement to such procedure.

(*b*) Some architects expressed the view that the normal bill of quantities is incomprehensible to them. Quantity surveyors should not resent any reasonable request to make bills more generally useful, provided that their primary purpose is not obscured. We feel that a more extensive use of annotation might be helpful, but if it can be established that any rearrangement of the form of bills of quantities will assist architects at the planning stage of future projects, this point is worthy of further consideration.

(*c*) There appear to be cases where the amount of work involved for the quantity surveyor can increase considerably, although there is conflicting evidence on this point, which emanates from the character of the 'elements' involved.

(*d*) The point made by one or two architects that the use of bills prepared by 'elements' could lead to the preparation of 'elemental' drawings was noted with considerable interest. Any new approach which can possibly lead to the improvement of precontract documents must obviously be encouraged by all concerned.

(3) The reaction of builders generally is at present unfavourable to the 'elemental' bill of quantities, chiefly on the grounds that tendering is made more complicated.

Apart from the instances mentioned in conclusion (2) above, we feel that it would be unwise, and unnecessarily confusing to builders, for the quantity surveying profession as a whole to undertake any large-scale change in the layout of bills of quantities at present. Before the Institution could recommend any such changes, it would be necessary for the users of the bills, namely the architects and the builders, to agree upon their requirements.

In conclusion, therefore, we have decided that the Special ('Elemental' Bills) Sub-Committee will be kept in being:

(*a*) to be at the disposal of any co-ordinating body which may be formed with architects and builders; and

(*b*) to keep the matter constantly under review and to report to us from time to time.

Sample Lists of Elements

1. Preliminaries.
2. Paved Playgrounds.
3. External Works.
4. Drainage.
5. Foundations and Site Slab, Including D.P.C.'s and Slate Cill.
6. Structural Frame.
7. Floor Deck.
8. Roof Deck, Roof Covering and Roof Lights.
9. External Walling, including Windows and Doors.
10. Internal Walling, including Screens and Doors.
11. Ceilings.
12. Floor Finishes.
13. Stairs and Steps.
14. Furniture and Equipment.
15. Electrical.
16. Gas.
17. Heating.
18. Plumbing.

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1. Preliminaries and Insurances.
2. Contingencies.
3. Works Below Ground Floor Level.
4. Frame.
5. External Walls and Facings.
6. Windows and External Doors.
7. Roof Construction.
8. Roof Lights.
9. Upper Floor Construction.
10. Staircases.
11. Glazier.
12. Internal Partitions.
13. Internal Doors.
14. W.C. Doors and Partitions.
15. Wall Finishes.
16. Floor Finishes and Skirtings.
17. Ceilings.
18. Decorations.
19. Fittings.
20. Plumbing (External).
21. Plumbing (Internal).
22. Sanitary Fittings.
23. Gas Installation.
24. Electrical Installation.
25. Heating Installation.
26. Drainage.
27. External Works.

BRITISH STANDARD

Dimensional and Constructional Requirements for Coke-burning Inset Open Fires without Boiler and without Convection (BS 2845 : 1957)

THE use in ordinary homes of open coke-burning fireplaces is becoming more popular, and will become increasingly so as more smokeless zones under the Clean Air Act are established.

The most important feature of this new British Standard (BS 2845, price 3s. 6d.) is that the specified dimensions and constructional requirements for coke-burning fires will by themselves be sufficient to ensure satisfactory performance in terms of heat generation, fuel consumption, and the maintenance of a 'lively looking' fire. With other types of fires, some kind of performance test is required to check that they function satisfactorily. Coke fires made in accordance with BS 2845 avoid such a performance test and they are included in the Ministry of Power's approved list of appliances for local authorities.

Detailed contents of the new standard include requirements for fixing the fire to the hearth, the design of the bottom-grate, fuel capacity, air control, the ashpit and ashpan, and for a gas-ignition burner (for which a concealed connection is recommended). Advice is also given on the use of an inset (i.e. fixed) to replace the open fire of an existing back boiler installation. In order, however, not to restrict the scope for variations in design, the standard is confined to essential features, notably dimensions, which control performance.

The standard requires that an operating tool (or tools) should be provided so that the user may safely carry out operations which would otherwise mean touching hot surfaces with the hand.

Among the clauses on marking is one which requires the maker to state whether the fire is 'intermittent' or 'overnight,' as well as to provide identification marks and the number of the new standard.

Dusseldorf Congress

A congress and exhibition on 'Factory Hygiene and Workmen's Safety' is to be held in Düsseldorf from October 17-19, next. Sponsors and organisers are the Deutsche Gesellschaft für Arbeitsschutz (German Society for Workmen's Safety) with the support of the respective trade associations.

MANAGEMENT TRAINING IN BUILDING

Plea for 'Special Priority'

MANAGEMENT training, particularly for top level management, is of such importance that it should be given 'special priority,' MR. D. E. WOODBINE PARISH said on Wednesday (April 10) in a paper on 'Management Training in the Building Industry' which he gave in connection with the exhibition of Cost Research and Cost Planning which is being held at the Brixton School of Building as part of the school's 'Open Week' this year.

'It is a melancholy fact,' said Mr. Parish, 'that the building industry to date has failed significantly to benefit to any degree from the experience gained in other major manufacturing industries which have developed and introduced scientific management practices.

'In brief, the process of management consists of four major elements:— First, Planning: which involves formulating policy, determining general programmes and promoting overall and detailed plans; second, Co-ordination: balancing, regulating and co-ordinating activities; third, Control: issuing instructions, checking performance and ensuring adequate results against forecasts; and fourth, Motivation: encouraging individual and collective initiative and maintaining morale. Effective management entails clearly stated aims and objectives so as to promote a high level of productivity and avoid confusion and consequential loss.'

From such definitions, Mr. Parish continued, it became inevitably manifest that the management function in greater or lesser degree embraced every sector of the industry, of which, let it be emphasised, the associated professions were an indivisible part—too often the architects, engineers and surveyors were thought of as self-contained groups quite independent of the industry, when in point of fact they were but sectors, albeit vital sectors, of a corporate industry concerned with fulfilling the building needs of the community.

'Many of our Continental friends,' the speaker continued, 'engaged in fulfilling their building needs in their own countries are seized with the importance of developing with all dispatch scientific management practices and techniques, and it is unthinkable that with the approach of a free market in Western Europe that the United Kingdom should fail to give a lead in this development. However, to achieve any real progress, a marked change of outlook among all sectors of the industry in this connection is necessary and a determined collective approach to identify and resolve the complex pattern of management is indispensable.

'What, in fact, is needed is a large-scale work study by a fully representative group into the process by which a building project is managed and directed from conception to completion and final payment. Many of the more forward thinking individuals in the industry and also the profession are convinced of the need for the early establishment of a College of Advanced Building Technology covering the whole range of building including architecture, surveying and structural engineering where research and studies at post-graduate level can be undertaken. Such an establishment might well become, in due course, a Staff College for the industry.'

Mr. Parish added that the efficiency of the building industry was in direct ratio to its management capacity and potential; therefore, in the interests of the industry itself and the community that it served, it was of cardinal importance to accord special priority to management training, above all to top level management, since it was at that level that the morale and climate of the industry was set and from that level that policies issued and the chain of management command right down to foreman level started.

PRESIDENT CONDEMNS 'DEMOLITION SPIVS'

Lack of Discrimination by Some Local Authorities

MR. W. J. BALDERSTONE, president of the National Federation of Demolition Contractors, criticised those local authorities who employed what he called 'demolition spivs' at the Federation's annual luncheon, held in the Waldorf Hotel, on March 27. Responding to a toast, 'The President,' proposed by Mr. F. W. Beazley, MBE, MR. BALDERSTONE said that these people had no regard for the safety of employees and in many cases where accidents occurred employees involved received no compensation. He went on to criticise some of the contractors used to carry out demolition work by local authorities. Some of them were 'dishonest,' and others 'inexperienced madcaps.'

'I am not addressing our friends from local authorities here with us to-day,' Mr. Balderstone continued. 'They wouldn't be here if they were like that. But one day they might move on, and I hope and trust that they will be our missionaries and do all they can to see that this sort of thing ceases. As the employers, local authorities should seek proper credentials from contractors on demolition work,' he stressed. 'Hole-in-the-corner methods result in the job being half done, and this reflects on other contractors.' As far as the Federation was concerned, applications were thoroughly analysed before acceptance.

MR. HARMAR NICHOLLS, MP, JP, Parliamentary Secretary of the Ministry of Works, in response to a toast to H.M. Ministry of Works, proposed by Mr. M. N. Penfold, vice-president of the Federation, referred to the progress being made in the clearance and demolition of slum houses. 'In 1957,' he said, 'from 50,000 to 60,000 houses will be cleared or demolished and more than that number in 1958.' This, he thought, should give demolition contractors grounds for optimism as far as the future was concerned.

A point which Mr. Nicholls made was the need for more care in the prevention of accidents. He appealed to those present to pay even more attention to safety measures in future. Another problem which received too little attention, he said, was that of noise. 'As the first men on the site, I would ask you to set an example in this,' he said. It would be ideal if increased efficiency could be combined with increased tranquillity.

SHEFFIELD LAND SHORTAGE

New Industry Discouraged by Ministry

SHEFFIELD City Council heard a statement by Alderman J. W. Sterland, chairman of the Town Planning Committee at a meeting on April 3 on recent talks with the Ministry of Housing and Local Government on matters in the Sheffield Development Plan which await overall approval by the Minister.

The need of more land for industry was evident, and Alderman Sterland said that there had been a re-survey of all lands within industrial areas which were shown to be undeveloped when the written analysis to the development plan was made. This was submitted to the Ministry in 1952.

The survey indicated that there was almost no land available for normal expansion needs and re-location of existing industries within the city. The shortage was largely due to the acquisition by the English Steel Corporation Ltd., of the major portion of the land it had been intended to develop as the Tinsley industrial estate, and he added that other lands may have to be considered for industrial development. But it was considered by the Minister that new industry for Sheffield should be discouraged, and that thought could be given to the possibility of moving industry to areas outside the present city boundary which might take overspill population.

The Committee could not deny that some industry would be needed to serve future overspill areas, but they were not prepared to accept the implied restriction on their freedom of decision. Alderman Sterland said that the following statement was eventually agreed upon as reconciling the conflicting views as far as possible: 'The town map indicates the areas allocated for industrial purposes. Those areas, to which some additions may have to be made later, provide some increase over the existing amount of industrial land to allow for the extra space required for modernisation and reorganisation and for any change-over to processes intended to diversify the employment pattern.'

On the question of overspill population he said it was important from the Corporation's point of view not to minimise the estimated amount, lest the case for securing land beyond the present city boundary, if proved necessary, should be weakened. The figure of 74,000 overspill had been submitted in the development plan. It was not estimated that overspill in the period to 1972 totalled 42,500. He also said that the Council wanted the allocation of land for an airfield at Redmires to continue there as an expression of the council's concern in the future of air transport.

ALDERMAN SIR HAROLD JACKSON said there was no difference of opinion between parties on the committee on the question of new industries. He could not understand any government of any colour endeavouring to say to a city of half a million people that as and from a particular date there should be no encouragement given to any new industry. A city with only two industries—steel and cutlery—could not afford to agree to such a doctrine.

REMODELLING SECONDARY SCHOOLS

Pioneer LCC Schemes

THE LCC Education Committee has approved proposals for major alterations to Walworth county secondary school, Southwark, at an estimated total cost of £261,940. This scheme is of particular interest because it is the first of about 50 projects for the complete remodelling of existing secondary schools to bring them up to the standard of the new schools now being built, and, because it will serve as a pioneer scheme in this general plan to provide for the educational 'bulge.'

Although included in the 1956-57 programme, the scheme is of such complexity that it may be necessary to postpone its commencement until early in 1958. It is planned to be carried out in four stages: first, the demolition of existing sub-standard buildings; second, the erection of a new five-storey block, and third and fourth, the alteration of the existing buildings, half of the work at a time. These latter stages will include rewiring, renewal of the heating system and repairs and redecorations estimated to cost £38,940, expenditure which would, in any case, have been necessary in the near future. In addition, the natural lighting, acoustics and general proportions of the classrooms will be improved by the introduction of false ceilings, while the many glass and timber partitions will be made soundproof by a partial covering of plaster board, which will also improve light reflection and provide display boarding.

The new block, built in a reinforced concrete frame with curtain-wall cladding, will provide a gymnasium with changing-rooms and shower baths, five science laboratories, two demonstration rooms, four workshops, a housecraft room, a dressmaking room and administrative and staff rooms.

When the work is finished the accommodation will provide a six-form-entry school, with about 1,000 places for boys and girls, substantially in accordance with current standards. During the peak period of pressure on secondary school accommodation, it will be able to take 1,100 pupils. The present roll is 875.

OFFICIAL NOTIFICATIONS

Furniture Development Council : Interim Reappointment of Members

THE current period of office of the members of the Furniture Development Council expired on March 31. In order to give time for the appropriate bodies to submit nominations from which the President of the Board of Trade may make new appointments to the Council he has, after consultation with the interests concerned, reappointed the existing members for a further period of two months as from April 1.

Application for Increase of Duty on Plywood Faced with Tropical Hardwood

THE BOARD OF TRADE announced on December 28, 1954, that they had received an application for an increased protective duty on plywood (including laminboard, blockboard and battenboard) faced with any hardwood other than birch, alder, beech or poplar. Sir David Eccles, the President of the Board of Trade, informed the House of Commons, on April 3, that the Government have now decided that a case has not been made out for an increase in the import duty on this material.

LCC

Housing Statistics, 1955-56

*THE LONDON COUNTY COUNCIL has just published its annual volume of Housing Statistics giving for the financial year 1955-56 a comprehensive account of the Council's housing activities, with details of the housing position at March 31, 1956.

The volume contains an outline of the Council's housing operations with a diagram illustrating the growth since 1900 in this important aspect of the Council's work; a description of the broad outlines of the Council's system of management with some notes on points of interest in the year under review; explanatory notes and observations on the statistical tables which give detailed figures for slum clearance work in London and for housing accommodation provided by London housing authorities, including details concerning various types and location of housing accommodation, the rents charged, and other information; and a summary of housing legislation as it applies to London, with brief notes on the financial provisions of the various Housing Acts.

In 1955-56 the Council built 4,912 new homes of which 1,737 were on cottage estates and 3,175 were on flatted estates. At the end of March, 1956, the Council managed 179,232 homes for about 750,000 people. Total rent received was £11,549,259, including local charges for rates and water.

In addition to the 179,232 dwellings, Council lettings included some 1,465 shops, 123 workshops, 2,694 garages, 6,100 allotments and garden plots, 64 clubrooms, and many thousands of stores, sheds and other miscellaneous properties.

Slum Clearance Progress

AT THE meeting of the London County Council on April 2, Mr. W. G. Fiske, chairman of the housing committee, gave some details of the Council's slum clearance programme, in reply to questions by the Hon. Mrs. Trevor Rose.

MR. FISKE said that under the Council's slum clearance programme, in 1956, 2,370 families were rehoused and a further 195 families were rehoused under the programme of assistance for the Metropolitan Borough Councils' slum clearance operation. These figures related to slum clearance under Part iii of the Housing Act, 1936. Comparable estimates for 1957 were 2,500 and 200 respectively.

He would not agree with the suggestion in a question that slum clearance was now the Council's 'main housing operation,' but he admitted that it was 'certainly the biggest single element in the Council's current housing operations.' He added that about 30 per cent. of all vacancies would, it was expected, be used for this purpose in 1957.

* 'London Housing Statistics, 1955-56' can be obtained from the Information Bureau at County Hall, SE1, and directly or through any bookseller, from Staples Press, Ltd. (Bookshop—14, Great Smith-street, SW1), price 2s. 6d., post extra.

SCHOOL BUILDING IN THE MIDLANDS

Staffordshire Programme

MAJOR school building projects in Staffordshire for 1958-59, which include many new primary and secondary schools, have been sent to the Minister. This was reported to the education authority on April 6. In the county area, new primary schools are planned for Tettenhall, Codsall, Seisdon and Rugeley, and instalments of new schools at Doxey, Stafford and Kinver.

The secondary modern programme for the county area includes extensions to Brewood grammar school and completion of the present instalment at Wombourn to a five-form entry comprehensive school.

A new one-form-entry junior mixed infants' school is planned for Streetly, and a new secondary school is proposed for Wednesfield. The general education sub-committee, which has put the proposals to the Minister, also reports that an additional programme of minor school building projects to a total cost of £500,000 is to be drawn up.

It is proposed that approximately one half of the programme should be devoted to schools without water-borne sanitation, and to schools requiring urgently needed small improvements.

The education architect had reported to the sub-committee that there was at present a steady stream of projects being started and practically all schemes were beyond the preliminary plan stage.

Extensions in Worcestershire

A MAJOR school building programme for 1958-59 submitted to the Ministry of Education by the Worcestershire Committee comprises projects totalling £458,500.

The report of the planning and development sub-committee states that the Minister of Education has informed authorities that he is prepared to consider favourably extensions to schools containing substantial numbers of pupils over the age of 15, designed to provide adequate facilities for the teaching of science and mathematics and forming part of the long-term development of the school premises.

'On the whole,' the report continues, 'the provision for mathematics and science in the secondary schools of the county, and in the grammar schools in particular, is quite good. We have, however, considered the special needs of two schools, Kidderminster King Charles' Grammar School and Evesham Prince Henry's Grammar School.

'We have asked the Ministry (a) to include a sum of approximately £15,000 in the programme for the provision of improved science accommodation at the Kidderminster King Charles Grammar School, and (b) to approve the scheme for the improvement of the accommodation at Evesham Prince Henry's Grammar School, the total cost of which is estimated to be in the region of £70,000.'

Membership of FASS

The Federation of Associations of Specialists and Sub-Contractors on April 4 welcomed the British Institute of Hardwood Flooring Specialists into associate membership.

Modern Planning of Bridges in Concrete

Lecture to Members of Joint Committee on Structural Concrete

DR. ING. RICCARDO MORANDI gave a lecture on 'Modern Conceptions in the Planning of Bridges in Reinforced Concrete and in Prestressed Concrete,' at the invitation of the Joint Committee on Structural Concrete, at the Royal Empire Society, 18, Northumberland-avenue, WC2, on March 19. Following is a summary of his remarks issued by the Cement and Concrete Association.

Dr. Ing. Morandi devoted the first part of his lecture to the discussion of arch bridges. Paying tribute to the many fine arch bridges of the past, he showed how modern techniques have made possible the conquest of great spans with concrete bridges having shallow arch rises. The chief aim has been continually to reduce the dead load in relation to the carrying capacity. The success in this direction is such that spans of 600 ft. and more have been built in recent years.

The demands of post-war reconstruction in Italy have provided the stimulus and the opportunity for the development of concrete bridge design stage by stage. Dr. Morandi gave examples from his own work to show the gradual refinement of the solution of a design problem, the designer benefiting from his own experience and that of others and from developments in concrete technique. In this way arches of continually increasing span, lightness and economy have been achieved.

Long Shallow Arch

For a bridge built in 1954 at Paguita on the La Guaira-Caracas highway in Venezuela, another long shallow arch was designed. The actual depth at the crown is 3 ft. and at the springing 8 ft., with a rise of 23 ft. over a span of 295 ft. The site called for minimum horizontal thrust in a markedly skew bridge, since the two abutments rested on soils of completely different physical characteristics. To allow for the difference in rigidity between the crown and the springing, the arch was composed of a series of independent parallel elements tied by transverse members.

Dr. Morandi maintained that an arch is economical to the extent that comparable values of bending obtain throughout its span, and consequently that any great difference in thickness at the crown and at the springing should be avoided. The dimensions of supports should be varied where necessary to bring to bear on the arch the least distortions possible. The logical pursuit of these criteria led to the most satisfying results.

Turning to details of execution, Dr. Morandi said that he normally chose systems of centering which, upon dismantling, allowed the arch to take its own weight by stages. To save centering when a deep valley had to be crossed, a special technique was used: two half-arches were constructed on the opposing banks and rotated into position. In this way, only a central tower of shuttering was required to support the first half-arch while the equipment was moved to position the second. This technique was used for the Vagli di Sotto Footbridge and for the Storms River Bridge in South Africa.

Beam Bridges

The second section of the lecture was concerned with beam bridges in reinforced concrete and in prestressed concrete. Again, the increase in span, lightness and economy with developments in concrete and steel were shown. A considerably lower relation between dead load and live load per unit of surface was possible with prestressed concrete than with reinforced concrete.

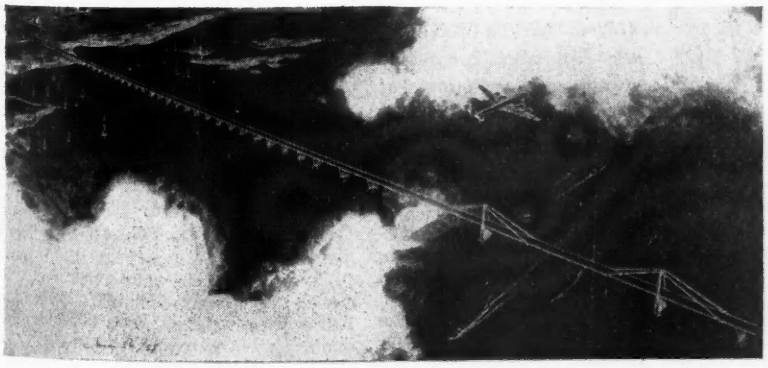
In designing prestressed concrete structures he always took care to adhere to the following principles: that it should be possible to apply tensioning gradually, to correct for any possible deformation; that the steel and concrete should be of such a quality that there should be no danger in approaching the limits of stress; and that, in indeterminate structures, it was helpful to have temporary hinges to accommodate deformations due to prestressing.

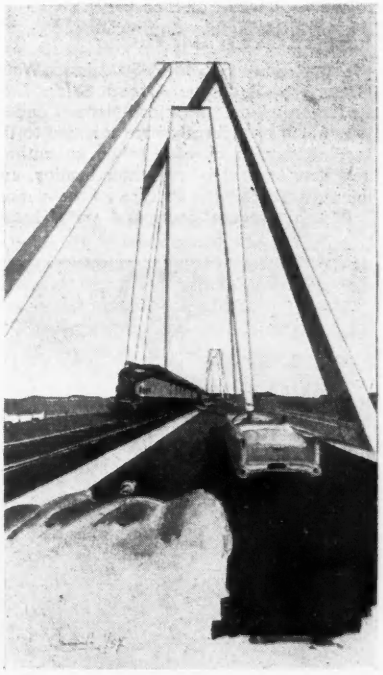
Dr. Morandi referred to a series of bridges of 70 ft. span for which prestressed concrete was used with advantages of lightness and economy, contradicting the normal view that reinforced concrete is more economical for short spans. He felt that the limit of usefulness of simply supported spans was reached with spans of 125 ft. The Carigliano Bridge in the Giunture region, consisting of three parallel frames prestressed throughout, was his first example of an indeterminate structure. For the San Nicola bridge near Benevento, on State Highway No. 90, a double cantilever frame with articulations at the base was used. The over-all length is 390 ft., with a clear central span of 260 ft.

Fatigue Limits

In recent years, Dr. Morandi had studied beams in which tension rods at the ends caused rotations in a sense opposite to that exerted by external loads. This simple arrangement was complicated by the fact that the steel for these rods (normally the same as that used for prestressing), being subject to deformation with loading, had very much smaller fatigue strength outside certain limits of stress variation. The selection of these limits was, therefore, of vital importance. The Amerigo Vespucci Bridge in Florence and the bridge over the Cerami in Sicily make use of such rods.

In conclusion, Dr. Morandi discussed his latest project, a bridge 5.6 miles long to cross the Maracaibo Lagoon in Venezuela with 11 central navigable spans, ten of 490 ft. and one of 1,300 ft. The central span of 1,300 ft. with the two adjacent 490 ft. spans forms an interesting complex (see illustrations), with special X-shaped supports at the ends, and two towers with oblique suspending members at the ends of the central span.





Two artist's impressions of the projected Maracaibo bridge to cross the 5½-mile wide Maracaibo Lagoon in Venezuela. The central span will measure 1,300 ft. and the ten other navigable spans 490 ft. each

The Builder Review of PLANT & MATERIALS

Aluminium Double-hung Sash

THE Warwick Sash Window in aluminium, now in quantity production by Alumin Building Components, Ltd., of Weston-super-Mare, under British Patent No. 642493, is claimed to be the most advanced design of metal window available to-day. Embodying all the advantages of the traditional sash window, with disadvantages eradicated by the use of aluminium in place of timber and stainless steel in the place of balance weights and cords, the Warwick window offers to architects a completely flexible modern equivalent of the non-projecting vertical window with precisely controlled ventilation, and with an efficiency of design which permits maximum light with minimum framing. It consists of two sliding panels, which are framed top and bottom, with horizontal stiffening rails, complete with all necessary latching and fixing devices. Vertical framing is effected by height bars either side of the glass panels. The height bars incorporate channels in which the panels slide, and fixing flanges for attaching the complete unit to the surrounding timber, aluminium or masonry frames. Weather proofing is provided horizontally by the styling of the horizontal head and cill rails, and interlocking meeting rails. Each panel is suspended on two close wound helical suspension springs, contained within the height bars. The suspension springs are attached at one end to the top of the height bars, the other end being attached to spring anchors fixed to the bottom rail of each panel.

Injector Gas Water Heater

The 'New World' Stratalyn Water Heater by Radiation Group Sales, Ltd., Radiation House, Stratford-place, London, W1, which has recently been released to the gas industry, is claimed to be an entirely new development in gas water heating, and the only appliance of its type on the market.

It is a 'Regulo'-controlled water heater for attachment to a hot water storage cylinder or tank by means of a single water connection, in much the same manner as an immersion heater. Input, 6,000 BTh.U/hr., output 5½ gallons/hr. raised 80 deg. F.

New Mixer

An entirely new range of concrete mixers incorporating many improved features of design has recently been introduced by the contractors plant division of J. E. Shay, Ltd., of Basingstoke. In production is the 2T size mixer which has an unusually short length achieved by installing the power unit, a Villiers Mk 12 four-stroke petrol engine, within the chassis. This arrangement permits a drum yoke extending the full length of the machine to accommodate the extra large capacity drum, which is of heavy-gauge all steel construction fitted with renewable cone, the entire drum assembly being removable by means of a single bolt. Mixing and discharging can be carried out from both sides and the drum yoke will rotate through a full 360 deg. The drive is by a V-rope and needle roller universal joints, operating inside the drum yoke to a specially designed heavy duty worm reduction gear box located in the centre. A retractable towing handle makes the machine, approximately 3 cwt., easily manoeuvrable and it will pass through a 2 ft. 6 in. doorway. The mixer conforms to BSS No. 1305, 1946.

An Export Sheet

The UAM Group, of Tolpits, Watford, Herts., announces the addition of two more items to its range of asbestos cement products. They are 'Unex' light service corrugated sheets and 'Universal' Duchess slates. 'Unex' sheets have been developed especially for the export market and are designed to meet conditions where light weight and ease of handling are particularly important. They are made in one standard size of 5 ft. by 20¾ in. A thickness of only $\frac{5}{32}$ in. is made possible by moulding with 'tight' corrugations of 3 in. pitch and 1 in. depth, achieving in this way adequate strength with a weight per sheet of only 14.3 lb.

Coloured Plastic Range

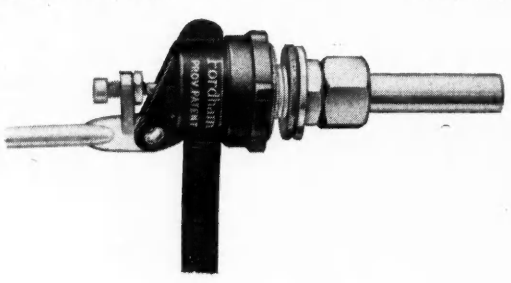
Richard Klinger, Ltd., of Klingerit Works, Sidcup, Kent, have added a new pattern to the 'Klindecor' range, called 'Calypso.' It is produced at the moment in red, green and yellow; blue and possibly ivory will be produced at a later date.

Fireback Boiler

The latest production of Hawkhead, Bray and Son, Ltd., of Phoebe Lane Mills, Halifax, is the 'Silver Hawk' fireback boiler, which is the result of four years' research by the company. It is made of a stainless-steel alloy which does not rust and is of all-welded construction.

Plastic Lagging

The use of 'Dohmlag' plastic dough for lagging has saved, it is claimed, as much as £2,000 per year in a comparatively small-sized factory of about 15,000 sq. ft. by cutting down wasted heat. Manufactured by Dohm, Ltd., 167, Victoria-street, SW1.



PLASTIC BALL VALVE.—A new high-density or 'hard' polythene is used for the new ball valve produced by Fordham Pressings, Ltd., Dudley-road, Wolverhampton. Screw adjustment is provided and the valve rubber can be replaced without dismantling the valve

AIR COMPRESSOR.—The new 'Monoblock' compressor by Apparatus and Instrument Co., Ltd., Aico House, Vineyard-path, London, SW14, has a displacement of 2½ cu. ft./min., a maximum working pressure of 40-50 lb./sq. in., with intermittent use up to 100 lb./sq. in. It is electrically powered. Weight, 60 lb.; size, 12 in. by 10 in. by 13 in.

Diesel Dumper

With a capacity of 1 cu. yd., the new Thwaites dumper has a heaped capacity of 36 cu. ft. and a maximum safe payload of one ton. Powered by a 6.75 hp Petter PH1 air-cooled diesel engine, it has a maximum forward speed of 10mph. The turning radius is under 9 ft. and the unladen weight it 21 cwt. Manufactured by Thwaites Agricultural Engineering Co., Ltd., Wells-road, Leamington Spa, Warwickshire.

Hydraulic Excavator

The 'Demag' all-hydraulic excavator, B504, will be on display at the Hanover Fair, May 15-26, for the second time. By Demag-Baggerfabrik, GmbH, Dusseldorf. This machine weighs about a third less than similar clutch-driven excavators, i.e., approximately 10 tons. Shovel capacity is ½ cu. yd., power is by a 42-hp Deutz diesel and maximum speed is 2½ mph.

STORAGE WATER HEATER. — Nearly two and a quarter gallons capacity (10 litres). The 'Two Plus' water storage heater by Aidas Electric, Ltd., Sadia Works, Rowdell-road, Northolt, Greenford, Middlesex, fills a gap in this range between the 1½ gallon capacity model and the 3 gallon one. Available in white or cream with blue, green or red bands. Loading 1,000 watts

TRADE NEWS

Slotted Angle Film

WHEN the Gold Coast became Ghana, viewing stands along the route taken by the processions, an arch, a flagpole and a pylon were all erected in 'Dexion' slotted angle. Dexion, Ltd., 65, Maygrove-road, London, NW6, have an interesting film showing the erection of the stands (which were claimed to be the largest slotted angle structures in the world) and their testing procedure. This consisted of marching a company of soldiers along the seats and putting them through foot-drill.

Birmingham Office

The Birmingham office of Air Control Installations, Ltd., has been moved to Wolverley House, Digbeth, Birmingham, 5. Telephone: Midland 5148.

Change of Name

Vickers, Ltd., Vickers House, Broadway, Westminster, London, SW1, announce that the change of name from Vickers-Armstrongs (Earth-movers), Ltd., to Vickers-Armstrongs (Tractors), Ltd., has been registered.

Asphalt at the Building Centre

The Natural Asphalte Mine-owners and Manufacturers Council announces the installation of a new exhibit at the Building Centre, Store-street, WC1. The main feature is a scale model showing the best technique in applying mastic asphalt as a waterproof 'tanking' material to a basement. Other points made in the display are specimen architects' drawings of the application of mastic asphalt as a roofing, a flooring and a damp-proof coursing material.

Australian Subsidiary

Brades and Nash Tyzack Industries Ltd., manufacturers of hand tools, have recently formed in Australia a subsidiary company in the name of B.N.T. Australia and New Zealand Pty., Ltd., with headquarters at Sydney, to co-ordinate the sales policy of Brades Nash Tyzack (Sales), Ltd., Henry Cheney Hammers England, Ltd., and The Kelly Axe Co., Ltd. The managing director is Norman J. Perks, and his co-directors are H. W. Halliwell and A. N. Harvey, directors of E. H. Collis Pty., Ltd., E. H. Vaughan, managing director of Howard Vaughan (Aust.) Pty., Ltd., and D. G. Bain, principal of D. G. Bain and Co.

INQUIRY BUREAU

Error in Contract

Q.—I would be glad to have your views on the following matter. A contract comprising various types of houses was let to a builder. A separate bill of quantities covered the main buildings of each type of house, but the standard outbuildings and screen walls, applicable to all types, were each covered by a separate bill. To obtain the tender price for each type a general summary was provided, but owing to a typographical error there was no item in the general summary for the inclusion of the total for the screen walls, and although the builder had rated and extended the items in the screen wall bill he had not carried the total of the bill to the summary. Other builders, in tendering, had detected the typographical error and had written in and included a sum for the screen walls in the general summary.

The bills of quantities were checked by the quantity surveyor, acting on behalf of the building owner, before the contract was signed, but although mathematical errors were discovered and agreed with the builder, the error dealing with the screen walls remained undetected. The work on the screen walls was varied during the currency of the contract and less than that taken in the screen walls bill was carried out. At no time during the progress of the work did the builder draw attention to the fact that he had omitted to include in the general summary an amount for the screen walls.

I have proposed that the final account should show the omission of the amount priced for the screen walls, viz., the total of the screen walls bill and an addition covering the value of the work actually performed in building the screen walls. The builder disagrees with this decision.

L. R. I. B. A.

A.—A Legal Correspondent writes: This question raises some difficult points of law, an answer to which could only be given after careful consideration of the terms of the contract and all the surrounding circumstances. It may be useful, however, to mention a few general principles.

It seems to be settled law that, if a builder makes a mistake in the pricing of a contract which is not discovered until after the contract is signed, he must abide by the consequences of his mistake. If the builder in this case had simply omitted to include in the general summary (and thus in his tender price) the amount shown on his screen walls bill, I should have little doubt in agreeing that the course proposed by the architect was the correct one.

The matter is, however, complicated by the fact that the building owner omitted the item for screen walls when sending out the general summary. It is difficult to say what view the court would take of this omission. It might be held that it was merely *falsa demonstratio* (inaccurate description not vitiating the document) and that the builder ought not to have been misled by it. It is just conceivable, however, that it might be held to be a misrepresentation as to the scope of the contract. Obviously, it was an innocent misrepresentation and, as the builder has finished the work, he cannot, in my opinion, ask for the contract to be rescinded. In *Boyd and Forrest v. Glasgow and South Western Railway* (1915), the contractors claimed rescission of the contract and a reasonable sum on a *quantum meruit* on the ground of the innocent misrepresentation of the railway company's engineer as to the nature of the strata through which the railway passed; the House of Lords rejected this claim because the contractors had completed the railway after full knowledge of the facts, and it was impossible to restore the parties to their original positions.

But, even though the builder in this case, cannot claim rescission and payment on a *quantum meruit*, that is not quite the end of the matter. The building owner in this case is claiming the benefit of a variation clause to reduce the amount of the contract price. It might be held that the building owner should not be allowed to do this in view of the fact that he has himself been guilty of an error. The court might come to this conclusion on general principles even if the mistake were not considered in the nature of misrepresentation.

There is one other complication. I do not know when the building owner or his professional advisers realised the mistake. It appears that the mistake was not observed although the quantity surveyor checked the bills and agreed mathematical errors. At some stage, however, it seems that someone acting on behalf of the building owner saw the priced bills submitted by other builders and observed that they had written in the necessary item on the general summary. If that happened before the contract was signed, the builder might be in a position to start an action for fraudulent non-disclosure. In this connection, I would refer to the case of *Dutton v. White* reported as to the hearing before Mr. Justice Stable (who found for the builder) in *The Builder* of February 25, 1955, page 344. The Court of Appeal reversed the decision on the facts; see *The Builder* of August 5, 1955, page 229.

In view of the uncertainties of the law and the possibility of litigation, I would think that this case was essentially one for a compromise. Even if the court were to find for the building owner, they might think that it was a little hard in all the circumstances to take advantage of the builder's error.

A. E. T.

Cleaning a Brick Fireplace

Q.—In my house I have a fireplace constructed of red briquettes which are of a porous nature and almost impossible to keep clean. Could you supply me with information on how to treat these bricks? T. H. R.

A.—Brick fireplaces are very delightful but they always present a problem if it is desired to keep them looking like new.

To restore some of the bricks' freshness the fireplace should be cleaned down with a stiff scrubbing brush and clean water and never with a wire brush. Continual use of a wire brush will very soon destroy the natural surface of the brick and, in consequence, will make the task of keeping them fresh almost impossible.

After cleaning down with water the bricks should be allowed to dry thoroughly. When completely dry the whole surface may be given a liberal coating of boiled oil. The application of the boiled oil should be with a paint brush. While the lasting property of such a treatment is not indefinite, it will be found to retain a freshness for considerable periods.

H. O. D.

Future Construction of Our Cities

THE CRISIS OF PLANNING

MR. GRAEME SHANKLAND, MA (Cantab), ARIBA, AMTPI, AA Dip., in an address entitled 'Dead Centre —The Crisis of Planning and the Future Construction of Our Cities,' given to members of the Architectural Association in London recently, began by quoting D. H. Lawrence, saying: 'The English are town birds through and through today, as the inevitable result of their complete industrialisation. Yet they don't know how to build a city, how to think of one, or how to live in one.' 'Is this true? And if true, why?' he asked. 'These are the questions we want to try to answer tonight.'

Referring to an article appearing in the *AA Journal*, which he had written, Mr. Shankland continued: First I must explain why I wrote the article and how this relates to what I shall say here.

Architects are more convinced about the city, the need to build and reconstruct our cities, than many other sections of the community. I tried to show in this article that this sentiment is something we need not be ashamed of, and is well-based on economic and social fact.

Tonight the subject is the metropolis, and the city. The poor old city, attacked on all sides from the pulpit to the Sunday tabloids. How often have the sins of society been blamed on the city! In fact the city is no better and no worse than we are. It is the reflection, at the highest and most complex social level, of both the virtues and the vices of our social life.

Landscape Classified

The first part of my article dealt with the need for the metropolis today and the significance of our great cities to us in Britain. I do not want to add to this. I hope most people will agree at least that our great cities are *here*, they will probably be here for the foreseeable future, and therefore need renewing.

Miss Sylvia Crowe has identified, analysed, and classified our different types of contemporary landscape. The wild open country, the rural farmlands, the townsman's country (which includes suburbia), and the town itself.

Britain, in the mid-twentieth century, can support these five main types of environment. Each has its own character, which must be recognised, respected, and sharpened by new building and development. Where new development is so large in scale, we must face the fact and the design for the different type. I am sure this is the right strategy.

Applying it to our problem, it means drawing a distinction between big city life and small town life. Both forms of living have their own human quality—if each is to be retained, their differences must be understood and developed.

The great objection to universal suburbia is not only that it is creeping everywhere but that it obliterates the distinction between these environments, it frustrates the physical expression of their different character, and while claiming to give every man and woman what they want, in fact denies to them the choice they could have.

The aim of planning, physical, social and economic, should be to make the good life possible in all these types of environment. A choice between a city or a village slum is no choice. People's housing needs change even in the most settled communities, as they grow up, leave home, get married, widowed, retire and grow old. It should be the social aim of planning and housing policy to provide, within the community, a choice in type of home to which people can move.

Planning inspired by respect for human needs means respect for the individuality of places. But needs change and places must change too—above all the big city.

Large Units Essential

The new city has a scale of its own and cannot emerge unless rebuilding is planned in units large enough to allow it to do so. This principle has been stated before. It is one of those sublime truths that have to go on being stated until people listen and something is done. Two things, I suggest, have obstructed the clear view of this problem. The failure to understand urban renewal as a continuing process and the scale on which this process needs to-day to take place in our big cities.

Urban renewal in our big cities does not stop because we fail to organise it properly. Leases fall in; Mr. Bloor sees a chance and moves in; a great private enterprise seeks a site on which to re-invest its accumulated capital and express its prestige; following up the rear a housing committee clutches desperately on one of the few remaining fair-sized sites. The use conforms, more or less, with the zoning and after a few skirmishes to try to get some car parking (some planning authorities do not even do this) and to see that it is not too unneighbourly, the planning authority approves it.

And so it goes on. While some of this development falls into places where radical renewal is not necessary or is not prejudiced, so large is the volume of planning applications that a great deal does not. These fragments of piecemeal renewal are frustrating the radical redevelopment of a much larger area.

The new city scale is the direct expression—not of ideas of architectural grandeur—but of new social demands. Contemporary social and technical requirements mean larger office buildings (for the same number of occupants) and if light is to replace light-wells, larger sites will be needed to accommodate them. The best possibilities of new housing types and imaginative housing layout can only be achieved on large sites. Modern educational standards call for larger school buildings and sites.

Post-war American practice has shown that urban motorways, better intersections, road improvements generally unless accompanied by large scale redevelopment that makes adequate car parking possible, will by themselves achieve little. Both the city's new building forms and its new pattern of city communications need large units of land over which to realise themselves. The scale of the mid-twentieth century city must therefore be larger because the units that compose it are larger.

Piecemeal slum clearance in the midst of continuing blight and decay will soon degenerate and defeat its object. The same scheme as part of a larger redevelopment aimed to change the whole local environment will be cared for and confer an infinitely greater benefit on those who use and see it. Densities which appear oppressive on small sites can look reasonable on large ones. This by no means exhausts the list of benefits to be obtained from concentrating redevelopment in large areas instead of dissipating it over small ones. It is one thing to analyse this problem, another to suggest a means of grappling with it—a social means within the general framework of our present social structure, which will achieve this physical result. Who is to sponsor these large operations in urban renewal—these segments of the new city?

It is in this connection that Sir William Holford's proposals for the great urban estate and the urban trust are so valuable. The essence of his idea is that we should again apply the principle which has brought about most of the great architectural and town planning achievements of this country from the middle ages up to the 18th century. The principle of the great estate, ground landlord and freeholder of the whole area who, through the mechanism of the long lease, secures long-term investment in development on a large scale. This is the opposite of short-term real estate speculation, the bane of planned urban renewal. Modern forms of this traditional English planning machinery, which has given us Fountains Abbey, Bedford Square and the Oxford and Cambridge Colleges, can be the means of bringing to-day's new city into being.

Local Authorities' Role

Until now, apart from the Crown, the owners of these estates have usually been private and semi-private bodies. Within the last 60 years, however, the local authorities have become landlords of large areas of their cities. Since the war the larger of them have been given the job of planning their cities. Any proposal for radical redevelopment of their cities must have their full support.

The snag is that they were not designed to undertake the essentially positive task of urban redevelopment. Town planning is a recent addition to their many other functions and is still usually seen as another statutory function to be pursued by means of permissive powers and regulation. Some of the larger authorities are capable of taking on this new positive task, but so far the national achievement is small. Without active government support and encouragement, of course, they can do little. Since the war some local

authorities have shown great architectural enterprise in pursuing their positive functions in schools and housing. Surely they can now be trusted with city redevelopment.

A city is not just a collection of housing estates and schools, however contemporary they may look. When the authorities see their task as not just one of running separate programmes of housing and schools, but of promoting a whole new piece of a city, they will probably find it necessary to change their committee structure and their departmental and inter-departmental arrangements.

Sir William has proposed the separation between the two kinds of planning administration carried on by local government—the statutory control of development and the promotion of the urban estate; for the consolidation of the positive side of planning and its association with the other positive constructural functions—particularly I would say with housing, which is by far the greatest single use in any city.

In some cities such an internal reorganisation of the authorities' functions may be sufficient and they can themselves constitute the urban trust. In others more than one authority and other important interests are involved. In others again the authorities are too weak, financially and technically, to undertake this kind of work by themselves. In such cases the urban trust, firmly based on the authorities, can undertake the job.

In the conditions of contemporary democracy such a trust would, Sir William has argued, be a public body. In the past 50 years of planning we have devised many such institutions. The Garden City Companies, the National Trust and the New Town Corporations.

The urban trusts conceived in this tradition, would be the ground landlord, co-ordinator and principal client in one, providing opportunities for building by private as well as by public enterprise. It would prepare a brief for the reconstruction of whole areas of the city and create the conditions for the effective patronage of town design on the scale the modern city requires. At least within the areas it controlled it could put an end to the present tragi-comic situation.

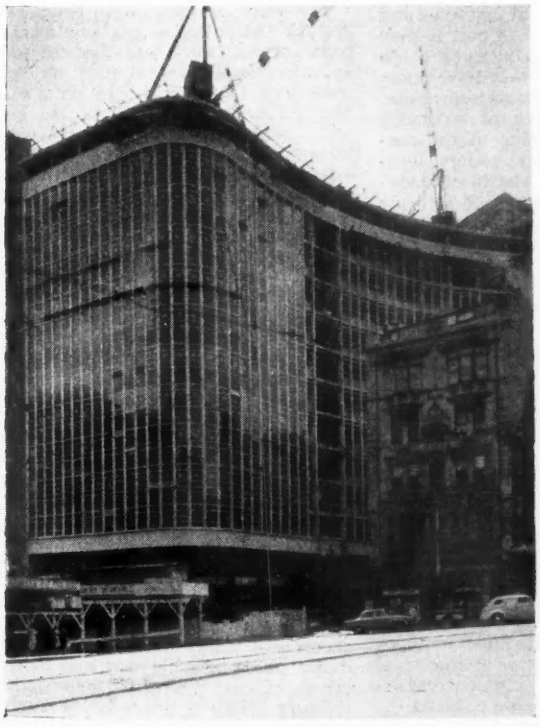
What kinds of areas in our cities need radical redevelopment on the scale and of the kind which calls for the management and direction of the urban trust? I suggest there are three kinds of areas, and three main kinds of surgical operation appropriate to them. They lie in the heart of the city—those portions that need replacing; in the blighted inner wards; and in the suburbs 'half dead and half alive'—which never had a heart at all.

In the heart of the city the areas are small but of great civic importance—St. Paul's Precinct, Piccadilly Circus and the centre of Coventry. Further out the wide areas of blighted housing: the central slum wards that surround Birmingham. 700 acres of the central wards of Liverpool where nearly half the houses need immediate replacement and most are obsolete. All our big cities have problems of this magnitude in these areas. Redeveloped to modern planning standards, with their new schools and open spaces, they cannot absorb their present numbers.

Two million people has been the estimated figure of this national overspill problem, some half a million homes. On present official ideas these would go into more new towns (33 new towns of 60,000 each—a sobering reflection) or perhaps some into expanded towns.

I have made the point in my article that the export of people and jobs outside the cities will only very indirectly help the operation of redevelopment of a particular inner slum area. If on the other hand we were able to provide more homes within the green belts, families displaced from a specific redevelopment area could be offered homes there, within their own cities, in many cases without having to change their jobs as they must do when uprooted to a new or expanded town.

At this point I want to refer to the Greater Stockholm plan and the principles which the Swedes have adopted in planning the structure, renewal and



NEW BUILDINGS IN SYDNEY.—A number of new tall buildings are now being erected in Sydney, Australia. Left: Now nearing completion in Elizabeth-street is this 12*-storey building which is being constructed for Qantas Empire Airways, Ltd., at a cost of* £*A*1,000,000. *The old block of flats to the right is to be demolished. The architects are Messrs. Rudder, Littlemore and Rudder, AA.RIBA, of Sydney. Right : The new Commonwealth Bank building on the corners of Market-street and York-street, which was opened last year*

growth of their capital. Stockholm is becoming a regional metropolis and is to this end building a series of suburbs of a new type, planned as sections of the regional metropolis. The latest of these to be completed is Vallingby.

With suburban development of this character the Swedish planners, basing their ideas on most careful study of contemporary social needs, have introduced some new basic thinking into city planning.

Has this any relevance to our problem—the one of dealing with the two million overspill from the worn-out inner wards? Are there any possible sites for this new concept of the 'Living suburb' within the green belts of our cities? The centre of Vallingby was built on land bought by the city of Stockholm for town expansion in the last century and kept until now as rock and pine trees. We have inherited a different legacy.

Three Main Areas

If we take an expedition along our suburban train lines and see where the stations within 15 to 35 minutes stopping distance from the terminus are sited, we find I suggest, three main kinds of areas or mixtures of them. The 'twilight' areas of the old Victorian suburbs with their decaying mansions and large leafy gardens, derelict land (particularly in the Black Country) and low density suburbia.

The land needs of the central area of this new kind of suburb—even with other uses than housing—are not large—if they are planned as they should be as high density communities for the pedestrian. The sites for these centres are there for the looking. The operation of buying and building (primarily a combined planning and housing operation) will, I suggest, be politically just as feasible and much more rewarding than building more new towns of 60,000 beyond the green belt.

I do not want to rule out new towns. but if we are to build more towns, they should be conceived not just as the dumping grounds for conurbation overspill, but as part of a national policy of population redistribution, and primarily from the point of view of being new regional centres for the rural areas.

It is puzzling that these ideas have not been put forward until so recently. The reason is that Ebenezer Howard's ghost still haunts British planning thought on all these questions. It would be foolish to deny the value and achievements of the garden city movement in Britain—but I think the time has come to lay the ghost of Ebenezer.

It was Lethaby who said 'London is as structureless as one of its fogs.' Nobody could accuse him of being a classicist. How much bigger and shapeless London would seem without all Nash's improvements. It is not monotony we should fear—but muddle.

How can we bring about a state of affairs in which urban renewal becomes a process to be forwarded, not just an activity to be controlled and town building a creative job, the central architectural and planning objective of the next ten years? As architects we have, I suggest, two roles to play in this drama. One in the back room and the other in the market-place.

For the first we need to do a great deal more work on discovering the architectural forms of the new city and to subject preconceptions of layout and civic design to the wider discipline of expressing the new city scale in human terms. But architects alone will not produce the new city. If we architects, engineers, surveyors and sociologists all put the city's needs first and professional prestige second, the basis exists for fruitful cooperation and for raising the whole level of the art and science of town planning and town design.

A certain very limited amount of this basic study and research is going on—mostly based on London, Liverpool and Birmingham universities—but not much is yet published. A great deal more money is needed for this kind of work and wider post-graduate facilities for architects who wish also to be city planners than are available at the moment. Architects are becoming more specialised and learning new skills but hardly any one is specialising in the problems of the big city.

It is no use architects sitting and waiting with their tongues hanging out for the 'planners' (that convenient abstraction) or an all-wise government to present them with large sites of old cities to redevelop. It will not happen like that. The case for radical city reconstruction has to be presented, argued and exhibited to the public, to politicians and to Parliament.

The existing professional institutes and organisations have their own part to play in this and they need encouraging to do it more vigorously. But they have many other functions. With great reluctance, born of some experience of voluntary organisations, I have come to the conclusion that another body, society, institute or association is probably needed—dedicated solely to the task of securing the radical reconstruction of Britain's cities.

'Frustrated Instinct'

I started this paper with a quotation from Lawrence. I will now complete it. The English, Lawrence said, 'don't know how to build a city, how to think of one or how to live in one,' and he continued, 'And this is because we have frustrated that instinct of community which would make us unite in pride and dignity in the bigger gesture of the citizen, not the cottager. The great city means beauty, dignity, and a certain splendour. This is the side of the Englishman that has been thwarted and shockingly betrayed.'

Lawrence is right. We must end this frustration. Our centres are not dead. Within them life is struggling to express itself, we must cast off their outworn shell and find new forms of architectural expression to give shape and concrete existence to this new life. We live and die with our cities; if they are ill, so are we. The spark point of the nation, they the centres of our economic life, a measure of our culture, the test of our ability to govern and the great challenge to contemporary architecture and planning. Are we going to accept this challenge?

PLANNING AND ACCESS TO THE HIGHWAY

By a Legal Correspondent

WHEN the tenant of a Corporation house applied for a garage and his proposal was approved by the South Kesteven Rural District Council, the Council applied for planning permission to the Lincoln (Parts of Kesteven) County Council for permission to develop access from the garage to the highway. This was necessary as the highway was a classified road and therefore outside permitted development.

The county council approved, subject to a condition designed to 'ensure that the surface of the highway is adequately strengthened.' They provided that the 'new means of access to the carriageway be constructed to a width of approximately 10 ft. with 6 in. of hand-laid pitching surfaced with 2 in. of tarmacadam or 6 in. of 1:2:4 concrete and with the kerb lowered to the satisfaction of the county council.'

The district council objected to this condition and appealed against it. They claimed that the condition was *ultra vires* because the crossing from the carriageway over the pavement to the start of the access was outside the appeal site and not within their control, despite the fact that the land up to the middle of the road remains in the ownership of the frontagers. The precise cost of having the work done to the standard set by the county council was £12.

The view of the county council was that the 'means of access' could include consequential work and that the frontagers had sufficient control to enable conditions requiring works on it to be imposed under S.14(2)(a) of the Town and Country Planning Act, 1947. The Minister did not feel it necessary to consider the second point. He felt that the permission requested did imply the doing of such development as was necessary to construct a proper access to the carriageway and that the conditions could be properly imposed.

This point is of interest not merely to local authorities but to all who are likely to require crossings over the highway. The county council stressed that previously where they had received an access application there was no intention on the part of the applicant to do any works on the footpath or verge. The Minister, in giving his decision, pointed out that where works were excessive and unreasonable there was machinery for settling disputes of this sort under sections 7 and 18 of the Public Health Amendment Act, 1907, as applied by the Local Government Act, 1933.

The case clearly shows that the developer must pay for the cost of his access not only within his own boundaries but to the highway and that it is not an expenditure for the county council to meet. This is governed by planning which is perhaps a useful way of dealing with such matters so far as classified and trunk roads are concerned: so far as a means of access to non-classified roads are concerned this might constitute permitted development and be outside planning control.

TOWN PLANNING DECISIONS

Proposed Erection of 118 Additional Houses on Pinner Estate Allowed

AN appeal by Messrs. H. W. Porritt, Ltd., against the refusal of the Harrow Borough Council, acting on behalf of the Middlesex County Council, to permit the building of 118 detached houses on land situate at the rear of Murray-avenue and Norman-crescent, being part of the Blythwood Estate, Pinner, has been allowed by the Minister of Housing and Local Government.

Permission had been refused by the Council on the grounds that:—

(i) Most of the site is in the Green Belt and should not be developed for houses; (ii) part of the land is defined for the route of the 'D' Ring Road; (iii) the proposal would be contrary to the policy which aims at restricting the spread of Greater London. It would have more than local impact and would aggravate road and rail traffic problems and the congestion in Central London.

The appeal site consists of about 10 acres of vacant land bounded by residential development to the east and west. An area of undeveloped land adjoining part of the northern boundary of the site is separated from a golf course to the north by a strip of housing land which extends southwards to the remainder of the northern boundary of the site. To the south of the site is an extensive area of open space.

On behalf of the appellants it was stated that:—

(i) There was a great demand for houses in the area and the appeal site was eminently suitable for residential development; (ii) all that was proposed was the completion of the Blythwood Estate by building on land which had hitherto been affected by the proposed 'D' Ring Road. Now that that proposal had been abandoned the major planning obstacle had been removed. Permission had already been given for the erection of 20 houses on part of the site adjoining existing development to the east, and stretching to within 60 feet of the previously intended road; (iii) the value of the land for Green Belt purposes was negligible since it was surrounded on three sides by residential development. It did not, in any case, form part of a belt since it was cut off from open land to the north by development in Albany-drive; (iv) the zoning in the County Development Plan as school playing fields did not necessarily ensure that the land would remain open or available to the public; (v) the existing extensive area of allotments, playing fields and private grounds to the south of the appeal site provided all the open space necessary for the area; (vi) the third reason for refusal was vague and unrealistic. An increase in the population of about 300 persons, which would be entailed if the appeal was allowed, was hardly a material increase and would not affect travel facilities; (vii) if the development of the whole of the appeal site could not be permitted, then permission should be given in respect of the western portion of the land.

On behalf of the Council, it was submitted that:—

(i) It was an important feature of the County Development Plan that in the area defined as Green Belt, which included the appeal site, building development should be subject to strict control; (ii) the Green Belt need not necessarily be of uniform width. The portions of the greatest value were often green wedges penetrating into built-up areas. The appeal site was part of such a wedge and was the link between the golf course to the north and the open spaces to the south; (iii) together with neighbouring open spaces, the appeal site tended to prevent the coalescence of Hatch End, Pinner and Oxhey; (iv) another aim of the Plan was to restrain the overall growth of population in the County. The appellants' proposal was contrary to this policy and would bring about a demand for more playing fields and social services; (v) whilst there was at present no firm intention to use the appeal land as playing fields or for school buildings, it could be used for these purposes and was allocated as school playing fields in the approved Development Plan.

The Minister, in the course of his decision, states that he has carefully considered all the facts of the case. He considers that the appeal land, which is largely surrounded by residential development, is not of such value to the Green Belt as to justify him in supporting the Council on these grounds alone, and while he notes that the land is allocated in the approved County Development Plan as school playing fields, no firm proposal for its use for this or similar purposes has been put forward. In these circumstances the Minister is satisfied that he ought not to withhold consent for the residential development of the land.

Accordingly, the Minister hereby grants permission for the erection of dwelling houses on land at the rear of Murray-avenue and Norman-crescent, Blythwood Estate, Pinner, subject to the condition that the numbers, siting, design and external appearance of the buildings shall be as may be agreed with the local planning authority, or in default of agreement as shall be determined by the Minister.

Gymnasium and Boxing Ring Adjoining a House : Minister Refuses to Allow Extension

THE extension of an outbuilding at No. 28, Monks-drive, West Molesey, for the purpose of covering over a boxing ring, which the Esher UDC, acting on behalf of Surrey CC, had refused to permit, has been considered by the Minister of Housing and Local Government following a public inquiry into an appeal by Mr. J. W. Price.

Monks-drive is a residential road backing on to an industrial estate. Occupying most of the space between No. 28 and the house next door is an open-fronted asbestos building about 24 ft. square and 12 ft. high which was used partly as a garage and partly as a gymnasium with a small boxing ring, punch balls and similar equipment. The appeal concerned an open shelter measuring 24 ft. square which had been partially erected as an extension on the back of the other building, and a second boxing ring had been put up under this shelter. A wall 6 ft. high on the boundary with the house next door has the effect of closing most of that side of the shelter.

The appellant explained that the gymnasium had been used by members of his family, by relatives, and gradually by other youths living near by. Boxing was added to their activities in 1954 and the extension was started in 1956 to accommodate a full-sized ring. The activities were of an amateur character and the gymnasium was used for training boys and youths, of which no more than 14 could attend, and then only on Tuesdays and Thursdays from 7.30 to 9 p.m. and for an hour on Sundays. There was very little noise and no traffic congestion. The industrial area adjoining had a much worse effect upon amenities. The appearance of the garage had been improved and the extension could not be seen. Planning permission for five years only was required and the proposal was supported by a number of local residents.

On behalf of the Council it was stated that complaints had been made about the noise from the gymnasium and that vehicles obstructed the road. As extended, the outbuilding covered more ground than the house itself and the extension was ugly. So long as activities were confined to the original building the Council looked upon them as an acceptable use of a private house for a hobby, but the extension had taken things beyond that and the Council considered that the activities should be controlled in the interests of the amenities of this residential street, which should not be allowed to deteriorate.

The Minister, having carefully considered the representations submitted to him, has come to the conclusion that the Council's decision should be upheld. He shares their view that this extension facilitates an enlargement of the activities at the gymnasium beyond what could reasonably be accepted as a hobby incidental to the use of the house as a dwelling, and that on this scale these activities are likely to cause loss of amenity, especially as the gymnasium is sandwiched between houses built close together on comparatively small plots. He has therefore decided to dismiss the appeal.

Houses Converted Without Planning Permission

AN appeal against the refusal of Wimbledon BC to permit the continued use of No. 270, Worple-road as four single-room flats and one two-room flat, with a communal dining room and kitchen, has been dismissed by the Minister of Housing and Local Government. The division of the house had been carried out, it was stated, without planning permission having first been obtained.

No. 270 is one of a number of semi-detached houses, adjacent to a small group of shops and a high block of flats.

On behalf of the appellant it was argued that:

(1) the area was residential and the premises were being put to a reasonable residential use; (2) there were schools, shops and garages at this end of Worple-road and it was absurd to say that the present use of this house was injurious to amenity; (3) in view of the surroundings, the density of 25 persons per acre envisaged by the Council was unrealistic; (4) even if, as the Council said, larger houses could be let for single families, this did not obviate the need to meet the great demand for accommodation for the many small families who could not afford a large house; (5) in view of the housing shortage, large houses should accommodate as many as possible; (6) the refusal of permission meant great hardship to the appellant who had spent much money on the conversion, and to the tenants who would become homeless.

The Council contended that:

(1) the house was not too large for single family occupation; (2) permission for the use of a house of this kind for flats would set a precedent which would lead to an undesirable change in the character of the locality; (3) this use would mean loss of accommodation of a type in great demand, *i.e.*, single family houses of moderate size.

The Minister has come to the conclusion that the Council were justified in objecting to this change of use. In his opinion, the conversion of large houses into flats is generally justified in these days, but the conversion of smaller houses is not always an advantage since it increases the shortage of the kind of accommodation most in demand. Apart from this, it would appear from the character of the conversion and the manner in which the house is occupied that, in this case, the accommodation cannot properly be described as flats, but is similar to what is provided in a boarding house or hostel, except that there is no resident landlady to supervise or provide service. He is of opinion that the Council are entitled to the view that this use would be harmful to the character of the neighbourhood and should not be permitted.

In carrying out the development without permission, the appellant ran the risk of being faced with the hardship which might have been expected to arise on a refusal, but the Minister has to think of the other people involved and, in order to give them ample time to make other arrangements, he has decided to permit the continued use of the premises for four single-room flats and one two-room flat for a period of three years from the date of this decision, subject to the condition that this use of the premises shall be discontinued at the end of the permitted period.

FILMS ABOUT BUILDING

Further Critical Appraisals

THE following is a further list, prepared by the Scientific Film Association, 164, Shaftesbury-avenue, WC2, in a series of critical appraisals of building films. Additional lists will be published at intervals.

The letters (H) or (F) after the title of each film signify Hire Charge, or Free Loan; 'b&w' means black and white. Below the titles are given the names of the sponsor and producer.

THE STRENGTHENING OF THE TANSA DAM (F), 15 mins., 16 sd., colour. Britain and India, 1956. (S. Schofield.) *Distributor*: Cementation Co., Ltd., 39, Victoria-st., London, SW1.

Content: The work of strengthening the Tansa Dam, Bombay, by anchoring it to the underlying rock by means of steel cables. Drilling 2,400 holes 2½ in. dia. from the top of the dam into the rock below, lowering the steel cables into the holes, stressing, and grouting in.

Appraisal: Technique well described, but for teaching purposes would need careful introduction to explain the purpose of the operations.

Recommended for: Civil engineers.

Suitable for: Technical colleges, audiences with scientific interests.

CONCRETE FOR ROADS (F), 17 mins., 16 sd., colour. Britain, 1956. (J. Laing & Co., Ltd.) *Distributor*: Sound Services, 269, Kingston-rd., London, SW19.

Content: A description of the sponsor's latest methods for making concrete roads, using large-scale machinery and a continuously operated process.

Appraisal: A well-produced and interesting film which contains much useful information for the specialist. The introduction, which covers other uses of concrete, is unnecessarily long and the background music distracting.

Recommended for: Road engineers.

Suitable for: Technical colleges, adult training.

SCIENCE OF MODERN BUILDING NO. 1 (F), 14 mins., 16 sd., b&w. Britain. (Messrs. Holland & Hannen and Cubitts.) *Distributor*: Aims of Industry, Ltd., 12, Carteret-st., London, SW1.

Content: Description of construction of B.E.A. hangars at London Airport, including new developments in reinforced, precast and prestressed concrete construction. The buildings include examples of exceptionally long-span construction, and new techniques of fabrication and erection of structural units are described.

Appraisal: Of great technical interest, but considerable technical knowledge is required if the rapid commentary is to be followed and construction techniques understood. Even for specialist audiences, presentation in sections with intervening periods for discussion and amplification would be advisable.

Recommended for: Structural engineers.

Suitable for: Technical colleges, secondary technical schools, audiences with scientific interests, adult training.

THE CONTROL OF CHIMNEY DRAUGHT (F), 25 mins., 16 sd., b&w. Britain, 1956. (Omnia Constructions, Ltd.). *Distributor*: Central Film Library, Bromyard-ave., London, W3.

Content: Effect of wind variations on chimney draught and on combustion of fuel in grates and boilers. Swiss research into factors influencing efficient working of solid fuel appliances. Importance of (a) height of flue and temperature of flue gases; (b) reduction of frictional resistance to flow of gases in flue; (c) construction of chimney outlet. Problems of design of satisfactory outlet. Advantages of 'Supira' fittings.

Appraisal: Good advertising film with some teaching value; scientific background well presented. Satisfactory photography and clear commentary; animated diagrams helpful.

Recommended for: Architects and builders; technical colleges.

Suitable for: General audiences; audiences with scientific interests.

JACK FROST STRIKES AGAIN (sale only), 14 mins., 16 mm. sound, b&w. Britain, 1956. (Anvil Films, for Water Companies Association.) *Distributor*: Sidney-Barton, Ltd., Field House, Breams Buildings, London, EC4.

Content: Inconvenience to householders in very cold weather due to inadequate frost precautions resulting in burst pipes. Methods of preventing freezing of pipes, including lagging roof cisterns and pipes on external walls, blocking up eaves openings and re-siting service pipe. Importance of noting positions of stop valves and drain cocks.

Appraisal: A lighthearted review of the subject which gives elementary advice to the householder on prevention of pipes freezing, without going into great detail. Extremely well produced.

Recommended for: General audiences.

Suitable for: Architects and builders, secondary technical schools.

IT'S AN ILL WIND (F), 14 mins., 16 sd., colour. Britain. (Smith & Walton, Ltd.) *Distributor*: Smith & Walton, Ltd., 12, Old Pye-st., London, SW1.

Content: The story of polyvinyl emulsion paint. Production by polymerisation and emulsification. Warning against use over grease, gloss paint or metal. Advantages of quick drying, ease of application, washability and good obliterating power. Examples of use of Synflat.

Appraisal: An interesting film which makes some good points and no extravagant claims. The useful information is somewhat obscured by irrelevant scenes.

Recommended for: Painters, decorators, architects and builders.

Suitable for: General audiences, technical colleges, secondary technical schools, adult training, audiences with scientific interests.

THE HANDY HUNDREDS (F), 11 mins., 16 silent, colour. USA. (Midwest Film Studios.) *Distributor*: Signode, Ltd., 7, Breams Buildings, Fetter-lane, London, EC4.

Content: American patent equipment for packaging bricks (in bales of a hundred) and the plant used in handling the packages.

Appraisal: An adequate description of the method of packaging bricks and handling them under favourable conditions. Good colour; absence of commentary not a serious disadvantage.

Recommended for: Builders and contractors.

Suitable for: Technical colleges.

ROOF PREPARATION (F), 8 mins., 16 sd., b&w. Britain. (Langley London, Ltd.) *Distributor*: Langley London, Ltd., 163, Borough High-st., London, SE1.

Content: Detailed information on the salient points of construction in the preparation of a roof to receive single lap tiling, together with some information on tiled roof finishes at valleys, verges, eaves and hips.

Appraisal: Useful film, but due to absence of commentary would require teaching notes.

Suitable for: Technical colleges and secondary technical schools.

A ROOF OVER YOUR HEAD (F), 35 mins., 16 mag. sd. (16 f.p.s.), b&w. Britain, 1953. (Langley London, Ltd.) *Distributor*: Langley London, Ltd., 163, Borough High-st., London, SE1.

Content: Examples of old clay tiled roofs at Bridgwater, Somerset. Hand-made tiles. Complete sequence of operations in making clay tiles by machine, including preparation of clay, moulding, drying, firing, sorting and despatch.

Appraisal: Useful description of the process, but film as a whole could with advantage be reduced in length. Poor commentary, background music distracting.

Recommended for: Architects, builders, slaters and tilers.

Suitable for: Technical colleges, secondary technical schools, adult training.

FLEXIBILITY IN WOODWORKING (H), 17 mins., 16 sd., b&w. USA. (Rockwell Manufacturing Co., USA.) *Distributor*: Central Film Library, Bromyard-av., Acton, W3.

Content: Shows various applications of a proprietary American multi-purpose woodworking machine, including sawing, planing, trenching, morticing and tenoning, turning and spindle moulding.

Appraisal: Shows the operations clearly; adequate commentary. The fact that guarding is not always adequate for British standards limits its use for technical instruction.

PLYWOOD AND BUILT-UP BOARDS (H), 9 mins., 16 sd., b&w. Britain. (Topical Film Co.) *Distributor*: Central Film Library, Bromyard-av., Acton, W3.

Content: Wood structure, volume and shape changes due to moisture. Built-up veneers to counteract movement; production of plywood, laminated board and block board. Composite boards with metal or plastic facing.

Appraisal: Brief review of the subject admirable for normal technical teaching.

Recommended for: Architects, builders, woodworkers, technical colleges, adult training.

Suitable for: Secondary technical schools, general audiences.

BRIGHTON SLUM AREA TO GO

Boston-street Redevelopment

A LARGE redevelopment scheme for the Boston Street area of Brighton was approved in principle by the Town Council recently. A slum area will be cleared, on part of which it is intended to build a large three-storey factory to accommodate from 6 to 8 industrial concerns of various sizes and trades. Estimated cost for this is £330,000 for 90,850 sq. ft. of factory space. The Town Clerk was instructed to ask the Minister of Housing and Local Government if loan sanction would be given at the present time, and to inquire from the Board of Trade as to whether this industrial development would have their approval.

Rehousing in Flats

Talk at the Housing Centre

THE views of a woman on the design of flats for rehousing people were presented in a talk at the Housing Centre recently my MISS M. J. MAYELL, housing manager to Finsbury Borough Council.

She said she had been fascinated by the RIBA symposium on living in flats and by the talk on the LCC high blocks which was given at the Housing Centre recently by Mr. Whitfield Lewis, housing architect to that authority. Residents in Central London had been accustomed to living in blocks of flats since the beginning of the seventeenth century, but many people still had objections to this mode of living. A well-planned estate of 200 people to the acre might well be easier to live in than a less well-planned one having a lower density.

Putting in a plea for estates of dwellings of mixed sizes, Miss Mayell said people on an estate must be able to exchange dwellings within its bounds as their needs changed. It was surprising how many of the families most carefully selected for an estate either needed another bedroom before long or found they had one too many and wanted to exchange flats with another family.

Referring to one-bedroom flats, Miss Mayell said these were usually designed for old people and were placed on the ground floor of a block. That was ideal from the point of view of stairs, but not from that of noise. She did not think the very large family was so happily housed in a large block of flats as the smaller one.

Maisonettes

Maisonettes were very useful in persuading people to live in flats eventually. There did not seem to be a strong feeling against exchanges between maisonettes and flats.

Inevitably, flats would be occupied by large numbers of children and therefore the layout should be open and easily supervised. Ideally the porter's lodge should overlook the whole estate. Adequate playground space was essential. Areas of grass were ideal and looked nice, but were difficult to rear in London. The best solution was to have small areas near the flats and protected from the surrounding roads.

The provision of lavatories for the children near the playgrounds would assist in reducing the risk of fouling of lifts and staircases. Some ornamental layout of the estate was essential, but paths should be designed to take the most obvious route from point to point, otherwise people would make their own paths in the course of time.

Ground-floor garages, cycle stores and accommodation for petrol-driven cycles, so much in use to-day, should be provided, together with pram sheds, although it should also be possible to take a pram up in the lift if desired. Miss Mayell had found the proportion of such sheds should be about one to every three tenants.

With access-balconies the tenants felt a lack of privacy. Many housewives in such flats had something to look at from the kitchen window, but were reluctant to have people passing their windows. They did not wish to hear too much of their neighbours and better soundproofing was needed in these large blocks of flats. Lifts should have as few 'bits and pieces' as possible to be pulled off, or otherwise damaged, by children. Internal surfaces should not be the sort that you could scratch with insults or messages.

Regarding communal laundry facilities, it should be remembered that some tenants bought their own washing machines. Clothes drying was always a problem. Access to drying cabinets in the block was one answer. As for outdoor drying, drying cages solved the problem of preventing clothes from being pilfered, but the cages should be wide enough to allow the clothes to flap about in the wind without being soiled by contact with the sides.

Refuse Disposal

The Garche system of refuse disposal was ideal from the tenant's point of view but not economical from the landlord's.

Speaking of internal planning of blocks of flats, Miss Mayell said it was generally accepted that the tenants would have at least some meals in the kitchen. There they would want food cupboards, but space must be left for a refrigerator. Fitted cupboards in the bedrooms were less in demand, but very popular when provided.

It was important that in high blocks the tenants should be given a feeling of security and high ledges and windows were necessary. Additional safety catches should be fitted to the windows.

In accommodation for old people there were often so many fittings that insufficient space was left for furniture that the tenants were sure to have. It should also be possible for the tenant to make the bed without having to move it about in order to get at both sides. For heating, Miss Mayell favoured a central system of some sort, with gas or electric fires for 'topping up,' but for water heating, individual provision for each tenant.

She had found that the tops of high blocks were popular with all but the older tenants. Occupiers of these floors enjoyed the views provided and boasted of feeling like a ship at sea when there was a high wind. The middle floors seemed to be more impersonal, but the ground floors were likely to be noisy and were seldom the first choice of prospective tenants.

In reply to a question, Miss Mayell thought it was invaluable to have a meeting place, such as a communal hall, for different groups in a block and such rooms could be let out to the tenants for wedding, birthday and christening parties and other social occasions, at cost price or a little more.

Asked if it were possible to do without a ground floor, as far as living accommodation was concerned, by building blocks of flats on stilts, Miss Mayell replied that in some blocks now the ground floor consisted largely of the caretaker's or porter's lodge or flat, pram and cycle sheds, store rooms of different kinds, etc., and were, in effect, on stilts.

RIPON CATHEDRAL

Critical Condition Disclosed

By B. S. TOWNROE, OBE, Hon.ARIBA

PROFESSOR Sir Albert Richardson, FRIBA, the former President of the Royal Academy, is Consulting Architect to the committee responsible for the repairs of Ripon Cathedral. He recently visited Ripon and found that the great central tower is now in a critical condition. The expense of the whole work continues to grow owing to the rise in costs of labour and materials. Although generous contributions have already been received, there is still need for more in order to reach the target of £100,000. The following are the most urgent needs from the structural point of view.

Extensive repairs are needed to serious cracks and fissures in the walls, caused by subsidence of the earth. The weight of the first-floor 14th century library bears down dangerously on the ground-floor 12th century chapter house, beneath which in turn is All Souls Chapel. Extensive repairs are needed to ease the strain.

Some of the buttresses which should afford support have been found to be hollow, so that they do not, in fact, serve as buttresses at all. This is in a part of the cathedral where the sloping land makes buttresses most necessary. New ones must be built.

There are serious cracks at the pinnacle of the north aisle of the choir—evidence of serious outward movement. This pinnacle counterbalances the outward support of the flying buttresses, and the danger is now so serious that all other work may have to be left to concentrate on this.

Portions of the stonework along the whole of the parapets on the north side are so weak that they can be rocked by hand pressure. Stone parapets to be rebuilt or repaired cover more than a quarter of a mile.

The tower is definitely unsafe and much work will have to be done on it. It has already needed first-aid repair to hold it together for the time being. Ripon tower has already fallen once. That was in 1660. It must not do so again.

Repairs 100 years ago were unfortunately done in soft-bedded stone. Now this is crumbling and water is running down into the joints. The hood mould of a fine 14th-century geometrical window will have to be repaired.

All the clerestory windows on one side—both nave and choir—are so badly perished that it is unsafe even to apply hand pressure in cleaning them. The ironwork holding the windows in position is so badly corroded and decayed in some places that a child's fingers could crumble it.

For all this work, many masons will be employed—indeed, some have had to be engaged at once, for to have delayed would have meant taking too great a risk.

Messrs. Ward, Ruddick and Ward, of York, are the cathedral architects, with Professor Sir Albert Richardson as consultant.

LIFTING GEAR ON BUILDING SITES

Talk on Accident Prevention

MR. W. D. SHORT, HM Engineering Inspector of Factories, in a lecture to members of the Birmingham Industrial Safety Group, Building Contractors' Section, at Birmingham recently, stressed the importance of proper handling, inspection and maintenance of lifting gear on building sites in the prevention of accidents.

The use of all types of lifting gear, he said, from a simple gin wheel to the largest crane, was covered by Part 3 of the Building (Safety, Health and Welfare) Regulations, 1948. The reason for these Regulations was that several hundred severe accidents due to lifting gear occurred on building sites each year. Some of these were fatal. Accidents connected with lifting gear could be grouped roughly under the following heads:—Misuse or faulty operation; overloading; poor design; inadequate maintenance.

An important point sometimes forgotten was the need for a competent operator of the lifting gear. The man must be trained, no matter how simple the gear. He must know the load capacity, how to operate the gear in a proper manner, if on a derricking crane, the effect of the load capacity as the jib was luffed in or out and the essentials of inspection and maintenance. Many cases of overturning or collapse were due to the inexperience of the driver.

Basic Requirements

The basic requirement for safety as regards the gear itself, was that it should be of good construction and design, be built of sound material and be free from obvious defects. To ensure this, the Regulations required all gear to be examined and tested before being taken into use on a building site. Generally speaking, these examinations had to be repeated every 14 months, although some of the lighter items such as chains, had to be examined every six months. In use, the lifting gear must be properly installed, anchorages must be adequate to withstand loads imposed on them and be designed so as to allow for regular inspection without having to dismantle the gear.

Continuing, Mr. Short said that probably the most common form of vertical transport on a building site was the open platform hoist. Experience over many years had shown that it was dangerous to ride on these hoists and this practice was forbidden by the Regulations. On tall structures a passenger hoist was of great advantage and two makes had been specially designed for ease of installation in a scaffold tower. They did not possess all the safety features of a permanent hoist, because at present it was impracticable to include all of these in the design. All hoists must be fitted with 6 ft. 6 in. high gates and fencing of the same height where anyone near by was likely to be struck by the moving platform or might fall down the hoistway.

The Continental type of tower crane, becoming a common feature on building sites in this country, had raised special problems which were not visualised when the Regulations were drafted, and in the light of experience gained during the few years these cranes had been in use in this country, modifications to the Regulations were being considered. These cranes, whether of the type with horizontal jib and trolley which takes the hoisting rope, or of the type with a derricking jib, provided great advantage in handling materials for construction work.

Very recently, he said, the Builders' Section of the Birmingham Industrial Safety Group had started a practical training course in safety for the building trade at their training centre at Summer-road, Acocks Green, Birmingham. This course included a session on lifting gear taken by a specialist from a large firm of constructional engineers. Practical illustration was given on the equipment at the centre.

ECONOMIC COMMISSION FOR EUROPE BULLETIN

Improvement in Housing Statistics Shown

WIDER coverage of housing developments in Europe is a feature of the Quarterly Bulletin of Housing and Building Statistics for Europe, a publication * of the Secretariat of the United Nations Economic Commission for Europe (ECE), issued on March 1. Eastern European countries generally had heretofore supplied annual statistics only. Their current figures in many cases cover quarterly periods. The publication itself presents data for the second and third quarters of 1956.

A study of the statistics in the bulletin shows residential construction throughout Europe at a steady rate compared with recent years, with increases noted in France, Italy, the Netherlands and Czechoslovakia and decreases occurring in the United Kingdom and the Scandinavian countries.

Using production and consumption of cement as a guide, it appears that total construction of all buildings—dwellings, schools, factories and other structures—is increasing throughout Europe, including the United Kingdom and Western Germany and running at a stabilised rate, compared with recent years, in the Scandinavian countries.

Building costs continued to rise throughout Europe, the bulletin reveals, being higher than in 1955 everywhere except in the United Kingdom and Western Germany. This publication also contains standard definitions for certain items occurring in current housing and building statistics and in housing censuses. The definitions are provisional, but their use on a test basis has made it possible to include in the current issue an all-European table on dwellings completed.

* 'Quarterly Bulletin of Housing and Building Statistics for Europe,' Vol. IV, Nos. 2 and 3 (for second and third quarters 1956); 105 pages; Economic Commission for Europe, Geneva. Copies from Sales Section, European Office of the United Nations, Geneva, or may be ordered through Sales Agents for United Nations Publications. Price 4s. 6d. stg.

HOUSING NEEDS OF OLD PEOPLE

Minister's Advice to Local Authorities

MR. HENRY BROOKE, Minister of Housing and Local Government, has suggested to local authorities in a new circular (No. 18/57) ways in which they can help old people over their housing problems. His advice follows an inquiry into the housing needs of old people which was undertaken at the instance of his predecessor some months ago.

Mr. Brooke suggests the provision of more one-bedroom dwellings—a subsidy of £10 per dwelling has been retained in order to encourage this—the conversion of larger houses into old people's dwellings, and the greater use of temporary houses.

To encourage collaboration between welfare and housing authorities in looking after the special needs of old people, County Councils are being given general consent to make contributions of up to £30 a house a year towards expenditure incurred by housing authorities in their districts.

The new circular recommends:—

Siting.—Accommodation should be close to shops and buses. Otherwise old people's independence is diminished and they are less able to take part in outside activities. In some areas, this may mean that the conversion of existing large houses, centrally situated, will often be preferable to new building. New dwellings should not be built in isolated colonies, but either interspersed among other houses or else in groups of manageable size, i.e., not exceeding 20 at most, on general estates of which they can form part.

Layout.—The arrangement of dwellings round a quadrangle gives too much seclusion. An open layout, or one round three sides of a square, is preferable.

Safety and Convenience.—Outside stairways to first floor flats can be extremely dangerous in icy weather and should not be adopted. A wooden hand-rail should be fixed to the wall near the bath. Shelves which cannot be reached without using a chair should not be provided.

Gas and electricity meters should be fixed at a height at which it is easy to put in a coin without either stooping or reaching up—e.g., at about 3 ft. from the ground. There should be an electric light switch by the bed.

Electric power points should be fixed 2 or 3 ft. above floor level, and placed so that there is no danger of tripping over the flex. Bath plugs should be of the self-registering type, to avoid the danger of reaching into the bottom of the bath to insert the ordinary type of plug.

Heating.—There is much to be said for providing central heating if this can be done without disproportionate extra total cost to the tenant in rent and fuel. In any case a radiator in the bedroom will be appreciated, and if there is no central heating, this can be fed from a back boiler to the living room fire.

To reduce fuel bills to the minimum and to obtain as much heat as practicable, the installation of an openable stove in preference to an open fire should always be considered. Tenants' preferences should, however, be taken into account.

European Timber Market Review

No Lasting Reduction in Sawnwood Prices Expected

THE European timber market has experienced a slackening since the end of the second quarter of 1956 which 'is no more than a reflection of general economic trends.' This is the conclusion drawn in the 'Timber Bulletin for Europe,' a quarterly survey prepared by the joint Secretariat of the United Nations' Food and Agriculture Organisation (FAO) and the Economic Commission for Europe (ECE). Although on the whole signs of prosperity still prevail especially in western Europe, the rising curve has flattened out in several countries.

The factors which since 1955 have been checking the steady expansion to which the world had become accustomed since the last war are well known, the Timber Bulletin* points out. First, with few exceptions —Italy, for instance—economic progress is hampered by a lack of skilled labour; then certain raw material resources are also frequently nearing their limits; again, the difficulties resulting from the too rapid rate of economic expansion, have nearly everywhere prompted the introduction of the measures traditionally used to curb excessive use of credit—namely, restriction of bank advances and higher interest rates. These measures produced some doubt and hesitancy which led to reduction in investment programmes, particularly in the field of housing. Stocks have become more costly to maintain and purchases of raw materials have slowed down.

Sawn Softwood

As regards sawn softwood, which accounts for the bulk of the market transactions, the slackening of business must be attributed not so much to a decline in consumption, which has remained fairly steady, as to the high level of stocks in the principal importing countries, the FAO/ECE survey notes.

During 1956, trends changed substantially on the European sawn softwood market. Where demand previously exceeded supply, the reverse is the case for the time being and there is a surplus. On the other hand, sawnwood consumption seems to be approaching a level at which any substantial expansion is hardly to be expected. Lastly, roundwood and sawnwood price trends are facing both forest producers and timber users with problems that are as serious as they are difficult to solve, the survey observes.

Efforts have been made since the war to ensure Europe supplies of sawn softwood appropriate to its requirements. Supplies are now fully adequate, and provisional forecasts suggest that the export potential might even show a slight increase in future years. In the main exporting countries fellings might increase by some 5 per cent. over the next five years and by another 10 per cent. in the following five years, the FAO/ECE survey indicates. Supply prospects are good on the whole, although there is no likelihood of a lasting surplus.

With regard to consumption, normal economic expansion can, of course, be counted upon partly to offset the effect of the gradual replacement of timber by other materials; but a steady increase in sawnwood requirements seems unlikely. It is, at any rate, difficult to foresee how far consumption will be able to keep up with the results of rapid technical progress.

Prices

It is generally believed that any appreciable recovery in the use of timber, its ability successfully to compete with other raw materials and maybe to find new outlets depends on a reduction in the prices to consumers, the FAO/ECE survey reports. While this argument appears to be irrefutable, the extent to which lower prices might stimulate demand for sawnwood has perhaps been exaggerated. Sawnwood prices have risen considerably, it is true—by comparison with other prices—since before the war and especially since the war. This has too often been regarded as the main cause of the strenuous efforts to substitute other materials for timber. But that may be a somewhat superficial judgment.

It is obvious that in the present situation the decline in the percentage of timber utilised 'per unit' could be halted. It has even been noted—and this is one of the outstanding features of the situation in western Europe—that in several countries the tendency to replace timber by other materials seems to have been checked or even reversed. It is, nevertheless, conceivable that a more effective means of changing timber consumption trends would be to improve timber utilisation methods and techniques and strengthen the contact between producers and users, the FAO/ECE survey suggests.

Attention has often been called to the need for more efficient forestry and sawmill techniques as a means of keeping production costs as low as possible. Whatever progress is made later, no appreciable lasting reduction in sawnwood prices is to be expected. Hence, the success of efforts to promote consumption, upon which the future of both exporters and importers depends, cannot be founded solely on lower prices; it depends quite as much on the use of methods hitherto neglected by timber circles in many countries, the survey contends.

At no time since the end of the war has close co-operation among all branches of the economy interested in forestry and timber been so essential or the need to understand all related problems been so pressing, as now, the FAO/ECE survey says, and it adds that since this report was written, the sky has been clouded over by new and important events of quite another kind, whose effects on the European timber market are unpredictable.

*'Timber Bulletin for Europe.' Vol. IX, No. 2, 149 pages, Geneva; available in bilingual edition, English-French, from Sales Section, European Office of the United Nations, Geneva, or may be ordered through Sales Agents for United Nations Publications. Price: $1.-; 7/6 stg.; Sw.frs. 4.-; or equivalent in local currencies.

WORLD TIMBER PRODUCTION

Expansion of Plywood and Fibreboard Industries

THE world's forests yielded three per cent. more wood in 1955 than in the previous year, the Food and Agriculture Organisation (FAO) has reported. Slightly higher prices and an increased output of processed commodities at the same time increased the estimated market value of the yield by more than seven per cent. over that of the 1954 output.

Tables showing production, consumption and trade are presented in the FAO 'Yearbook of Forest Products Statistics' (Rome: US $2.50), which this year includes information drawn from more than 120 countries.

The total fellings were 1,465m. cubic metres, against 1,424m. cubic metres in 1954. The growth of output was greatest in the North American region where production rose by more than five per cent., with a rising trend also evident in Europe, the USSR and Asia. Estimated value of all forest products was $29,800m. against $27,800m. in 1954. The yearbook noted a continuing trend to more rational use of forest resources.

Tables on world trade showed that Europe and North America accounted for more than four-fifths of total reported exports and imports. The value of exports was estimated at $4,966m. in 1955 against $4,288m. in 1954, and the value of imports at $5,386m. against $4,441m. in 1954.

The world output of sawnwood, at 294m. cubic metres (both softwood and hardwood) had increased by almost four per cent., with the USSR leading on percentage with a 10 per cent. increase and North America posting the highest rise in volume—5.5m. cubic metres. World exports of sawnwood rose by 12 per cent. to 35.2m. cubic metres, with the USSR posting a 47 per cent. increase over the previous year.

In the fast-growing plywood industry, both production and trade expanded sharply. World output rose by 17 per cent. to 10.4m. cubic metres, and world exports to 990,000 cubic metres from 820,000—a rise of more than 20 per cent. The United Kingdom and the United States continued to be the chief importers, accounting between them for 73 per cent. of the total world imports.

The yearbook figures recorded a steady rise in the manufacture of fibreboard, both compressed and non-compressed. Non-compressed board output increased by 10 per cent. over that of the previous year and hardboard output by 11 per cent. Total world production reached a record level of 3.2m. metric tons, with more than one-half of it in North America and 37 per cent. in Europe. In tonnage Sweden exported one-half of the world's export tonnage of fibreboard, and the United Kingdom accounted for 39 per cent. of total world imports.

IPWA Booklet

A booklet on 'Domestic Heating in the United Kingdom' has been issued by the Invisible Panel Warming Association, Grand Buildings, Trafalgar-square, WC2. The booklet is a reprint of Paper 22, Central Heating Systems, as presented at the Institute of Fuel Conference held in London on May 1 and 2, 1956.

'The Lighting of Industrial Buildings'

Aiding Production and Ensuring Safety in Factories

A PAPER on 'The Lighting of Industrial Buildings' was given by MR. T. S. JONES, on March 22, at the third and last of the 1957 series of conferences for architects held in the lecture theatre of the ELMA Lighting Service Bureau, Savoy-hill, WC2, from which we take the following extracts. Mr. Jones said:

You will readily appreciate that the variety of shape, size, texture, opacity, translucency, transparency, colour of materials handled and seen in industrial processes is almost infinite. Now, size and light intensity are inversely related to speed of vision, i.e., the more light or the larger the object the quicker it is seen. Conversely, to keep up the speed of seeing, more light is needed on smaller objects than on large. A moving object tends to become blurred at a certain speed, but an increase of light renders it more clearly visible at that speed.

By increased contrast of light and shade, or of colour, objects may be more clearly defined relative to their immediate background. The maximum visible contrast of colour is between black and yellow. Some colour contrasts such as orange and green can prove visibly confusing.

Of course, the intensity of light is a prime factor in all matters of vision, but this must be allied with size of object and contrast of immediate background. So much for the pure action of seeing. But we can't stop there. To see quickly and clearly for more than very short periods it is just as necessary that general surroundings shall not prove distracting. Distracting by harsh contrast of brightness or of colour unless such change is intentional to denote danger or to call for action on the part of an operator.

Interior Decoration

Interior decoration is of importance, not only of walls and structure which may only form a small part of the visible background of a large shop, but of roof or ceiling surfaces and of machine tools. Light colours for major surfaces with colour contrast of significant features such as plinths, mouldings, guards, etc., define shape, position and size, and avoid visual boredom while, at the same time, they serve the economic need of reflecting light, whether natural or artificial. Furthermore, the aesthetic sense is well served by the spacious and stimulating effect of a clean, light interior.

Although the lightmeter may be used as a measure of intensity, it is the eye which really judges effect and, in fact, it is often found that an interior with plenty of intensity of light on the work still appears to be poorly lit because general surroundings seem dim, monotonous and dismal. Dark ceilings are particularly bad in this respect and it is usually beneficial to pass some light directly on to ceilings, particularly where lighting fittings are on pendant drops, otherwise the apparent height of the room comes down to fittings level producing a 'Tunnel Effect.'

Superimposed upon the decorative scheme may be services such as pipes for hot or cold water, steam, electricity, gas, etc. Each has its appropriate colour code for quick reference but, of course, it is not necessary to create a maze of colour but only to identify significant points such as valves, outlets or inspection boxes. Fortunately many decorative combinations of colour also help towards economy, but it is wise to check the actual colours under lighting of the type and colour to be used.

The Factory Act prescribes minimum intensities for safety of those moving within industrial buildings, but just as clearly these intensities bear no relationship to the production of operative needs of the job. Glare control by shielding of light sources from direct vision within normal angles of view is coupled also with control of brightness of reflectors or of transmitting surfaces which the Act limits to 10 ft.-candles per square inch at elevations less than 20 deg. and distances less than 100 ft. from the point of employment. In the Act, too, attention is drawn to the danger of dense shadows. Not, of course, the elimination of shadow as, with objects of similar colour and matt texture, absence of shadow would mean absence of form and may constitute as positive a hazard as the too dense shadow hiding the stumbling block.

Higher Light Values

It is now generally accepted that, up to quite high values, more light of the right quality tends to improve production in quality and quantity. A table of test results shows the experience of some industries but the table is rather old and few modern factories of these classifications are working down to the intensities of even the better of these two systems. It is pleasing to find that industrial management today is often well in advance of the somewhat conservative recommendations of this bureau and of the IES.

Maintained intensities of 20 to 30 foot-candles are regularly exceeded for machine operations, and of 30 to 50 foot-candles for assembly work, clothing factories and the like. When still higher figures are required as for fine operations such as instrument making, or where close attention needs to be given to fine lapping of small parts, local lighting is often the answer, but it is as well to remember again that the harsh contrast of a local light with the relative darkness of a poorly lit surround may greatly increase the rate of fatigue of the eye and cause general tiredness, irritability and even physical indisposition of the individual. This comparison of local and of surrounding illumination values is based upon average industrial background brightness and may be taken as a practical guide.

In the design of lighting fittings account must always be taken of the surroundings in which they have to work so that long life and safety sometimes become prime factors of design. The situations springing most readily to mind are, of course, those where explosive gases may be present and for such situations rigid specification is laid down with test data applicable to the particular group of gases; such fittings have to be certificated in prototype design and variations of lamp size or material or finish may invalidate the certificate.

British practice is to assume the worst, that is, that within the fitting an explosive mixture will occur and that an explosion will take place. The fitting, therefore, is not hermetically sealed but a calculated gap is allowed between two metal flanges sometimes with a tortuous path in order to give sufficient cooling effect to the hot gases in order that they shall be at safe temperature when emerging from the gap. Variations of gap and flange dimensions are made for different groups of gases and coupled with this is a maximum temperature rise for the body of the fitting so that deposited inflammable material shall not rise above flash point. Less dangerous, but often very destructive, are situations where corrosive vapours or liquids are present.

In food factories it is necessary to enclose fittings with clear or translucent material which must not be glass because the object is to avoid any danger of glass falling into prepared foods, either from a broken lamp or a broken fitting because the whole batch of food in process would need to be destroyed if any such danger had occurred.

The aim of the lighting engineer is to co-operate with the architect in order that the overall visual effect shall be suitable for high production, low fatigue and good psychological reactions. Together, also, they must ensure that the finished appearance of a job is good and that the electrical installation does not spoil the architectural conception. The designer of equipment must see that the costs of installation and the costs of maintenance are kept as low as possible and that finished equipment when installed shall be safe, effective with the maximum degree of efficiency relative to that effect, and that maintenance can be carried out in a practical and economical manner.

Previous speakers have stressed the value of early co-operation between the architect and the lighting engineer; might I go further and suggest that, in many cases, such co-operation could also be beneficial if other specialists such as the heating and ventilating people and the fire prevention people were drawn in at an early stage, because, invariably, their interests clash and require to be considered relative to the effective operation of their products.

Discussion

The discussion was opened by MR. E. D. JEFFERISS MATHEWS, OBE, FRIBA. Mr. Jones, he said, had given a most interesting insight of one of the 'end products' of building design. Architects all knew what a problem it was to foresee a satisfactory conclusion in the early stages of planning and a lecture such as this which so comprehensively covered the performance of an 'end product' so important as lighting, was obviously of great value.

He had found that wherever factory lighting was discussed with a client the first matter to arise was, almost inevitably, that of the comparative merits of natural and artificial lighting. If the discussion was solely concerned with artificial lighting, then the client was distinctly unusual for, though the windowless factory might be best from the point of view of pure lighting efficiency, most workers did not like being unable to see out. At the opposite extreme there was the client who demanded a maximum daylight factor, entirely forgetting the many working hours during which natural lighting was insufficient, even though night work might not be done.

Influence on Design

In the more normal compromise the relationship between natural and artificial lighting was usually the next question to arise. This was of particular concern to the architect, as it had a great effect on the placing of the artificial lighting in relation to the natural lighting and might well influence not only the interior but also the exterior design of the building.

Lighting was a most controversial subject and it always struck him as remarkable that highly intelligent people could have such diametrically opposed views. Manufacturers, such as those who had instituted these conferences on lighting, were to be congratulated, for there was a need for much post-graduate study by architects if they were to understand fully and keep up to date with modern methods.

He had been intensely interested in the paper by Mr. Jones and only wished that there had been time to develop the subject further.

MR. C. S. WHITE, FRIBA, said it was clear that those who had a knowledge of industrial buildings were becoming increasingly conscious of the important part that lighting plays. He himself believed it to be incalculable, influencing health, output and self-respect. The reason for his conviction was that he had far more to do with altering old premises than designing new ones and he had been able to see the effect that improvements in the amenities had had on the workpeople. He regarded lighting as an amenity. Too often this word was assumed to cover such things as canteens, rest-rooms and first-aid posts, but he was not sure that good lighting was not the most important amenity of all.

He, too, believed that more guidance was needed on the relationship between light and colour and mentioned a Lighting Service Bureau publication dealing with this subject, and also those issued by the British Colour Council. Referring to the point made by Mr. Jefferiss Mathews about the influence of lighting on building design, he said that while the enterprising shell shapes that some architects were designing were reasonably easy to keep clean there were still many factories being built where economics dictated the use of pitch roof and trusses which in time became dark and dirty. As buildings aged it was only too easy for both managements and workers to become accustomed to an all-pervading gloom. Regular cleaning was a necessity and would pay dividends.

Much as he was sure the audience had enjoyed Mr. Jones's paper, Mr. White felt that perhaps it had rather been a matter of preaching to the converted and he wondered what steps were being taken to reach the factory owners themselves who relied far too much on their own engineers and maintenance men to provide the lighting instead of obtaining expert advice.

MR. NORMAN BROWN, ARIBA, ARICS, inquired whether the high lighting intensities coming into general use might be liable to create disagreeable effects akin to snow blindness in circumstances where large areas of light-coloured material were being used, as in drawing offices.

MR. THOMAS PEATFIELD, DFC, Dip. Arch., ARIBA, asked for guidance on the relationship between the natural and artificial lighting in those interiors where supplementary artificial lighting was used.

Replying to the discussion, MR. T. S. JONES agreed with Mr. Jefferiss Mathews that the variability of daylight was far too frequently overlooked. It might not have so great an effect on the single-storey factory in an open space, but in multi-storey buildings it was of the utmost importance, and while he considered 'vision' windows around the perimeter necessary to avoid a feeling of claustrophobia, it was frequently a better economic proposition to depend on artificial lighting for the working light.

Effect on Workers

The point Mr. White had made about self-respect was, he said, very true. He remembered particularly the troubles the cotton industry went through just after the war, for their workers were drifting away to new, bright factories. It was not a question of wages but of environment, for the drift had been largely halted by the efforts the Cotton Board had made under the direction of Sir Raymond Street to improve conditions. Good working surroundings combined with good lighting did not provide a complete cure for labour problems, but they could make a very substantial contribution.

Regular maintenance, he agreed, was important. A light ceiling was essential and he warned against the use of low mounted fittings with no provision for upward light, for they inevitably gave the appearance of bringing the roof down to the level of the fittings.

Mr. Brown need have no fear from snow blindness from artificial lighting. The highest intensities used to-day were still well below those obtained from natural lighting on even a dull day in the open air, and were far away from being harmful if properly installed. He quoted experimental installations of 250 and 500 Lm/ft.^{2}, which he had seen in America, and said that even these with the surroundings suitably treated had been entirely comfortable.

Whilst unable to give Mr. Peatfield any definite guide about the relationship between supplementary artificial lighting and daylight, the fall-off in daylight values inside windows was very rapid and the eye had a remarkable degree of tolerance. It was, however, obvious that the brighter the natural lighting the better the supplementary lighting would need to be.

MR. E. B. SAWYER, FIES, chairman, said he had been most gratified by the interest in the lectures and would warmly welcome any suggestions for subjects to be included in future conferences. He concluded the meeting by inviting the audience to make use of the Bureau. Its free advisory services were at their disposal and they and their clients would always be welcome.

'LIGHTING IN AMERICA'

Lecture by Dr. R. G. Hopkinson

'LIGHTING IN AMERICA,' was the subject of a lecture given by DR. R. G. HOPKINSON, vice-president of the Birmingham Centre of the Illuminating Engineering Society, following the annual meeting of the Society, held at Regent House, Birmingham, on February 22. Dr. Hopkinson described his two recent visits to the USA, and illustrated his impressions both as a lighting engineer and as a tourist, with colour transparencies.

He informed his audience that he had been invited to attend the 50th Anniversary Convocation of the American IES, and had given an address to the Society. Thus he had had the opportunity of meeting American lighting engineers and discussing with them their programmes of research and production.

The most important conclusion he had drawn from his visit was that in the USA research on visual comfort and efficiency was considered of prime importance. He felt somewhat isolated in England, because studies in visual comfort tended to be looked upon as academic and of little interest to the practical man. In the USA they were fully convinced that practical lighting demanded visual comfort, that there was money in it and they were all out to get it.

Research in England, went on Dr. Hopkinson, was fully up to that in America, and in some cases we were ahead. On the other hand they were ahead in the adaptation of modern recording and analysing equipment to lighting research, and in the employment of professional statisticians in lighting research on a more extensive scale than here.

He went on to pay special tribute to the work of C. L. Crouch, Professor E. M. Strong and their associates of the Illuminating Engineering Research Institute, a body which directs lighting research in many university laboratories. This body is financed by the manufacturers who are convinced that independent research means progress and commercial advantage for them. The most interesting project was that on overall ceiling lighting. The claim was now made that higher levels of lighting could be produced by artificial means, with less visual discomfort, than could be produced at present by natural lighting. Dr. Hopkinson said that, from what he saw, this claim could be substantiated.

The Builder

CURRENT PRICES OF MATERIALS

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AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

	£	s.	d.
Pit Ballast ... ... per yd.	1	7	0
Pit Sand ... ... ,,	1	4	5
Washed Sand ... ... ,,	1	7	7
¾ in. Shingle ... ... ,,	1	3	11
¾ in. Broken Brick ... ... ,,	1	0	6
Pan Breeze ... ... ,,		10	9
Fine or Coarse Foamed Slag Aggregate ... ... per ton	3	5	0

2 yds. of fine and 2.6 yds. of coarse per ton.

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

Best British Portland Cement. Standard Specification delivered Charing Cross area.			
6-ton loads and upwards, site ... ... per ton	5	4	6
1 to 6 tons, site ... ... ,,	5	16	6
Rapid Hardening Cement in 6-ton loads and upwards to site ... ... ,,	5	15	0
1 to 6 tons do. site ... ... ,,	6	7	0
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.			
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.			
Red, Buff or Khaki Colorcrete in 6-ton lots ... ,,	8	1	0
Other colours according to colour.			
In 4-ton lots from 298s. 0d. to 688s. 0d. per ton.			
White Portland Cement ... ... ,,	13	5	0
Under 1 ton ... ... per cwt.		15	10
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards ... ... per ton	6	17	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.			
Cullamix Tyrolean Finish, £11 8s. 0d. to £14 3s. 0d. (1-ton loads and upwards).			
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up ... ... ,,	14	15	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London ... ... ,,	6	17	6
Moler Mortar Powder for Flue Bricks (London sites) ... ... per cwt.	1	10	0

BRICKS

Full Loads.			
First Hard Stocks ... ... per 1,000	12	17	0
Second Hard Stocks ... ... ,,	11	16	0
Mild Stocks (Kiln Burnt) ... ... ,,	9	1	6
Mild Stocks ... ... ,,	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.			
2⅝ in. Nominal Fletton Bricks to sites in W.C.			
District Commons ... ... ,,	5	15	0
Cellular do. ... ... ,,	5	15	0
Keyed do. ... ... ,,	5	17	0
Rustics ... ... ,,	7	5	0
Cellular Rustics ... ... ,,	7	5	0
Single Bullnose Commons ... ... ,,	7	5	0
Sandfaced ... ... ,,	8	2	6
Tuscans ... ... ,,	8	17	6
Saxons ... ... ,,	9	5	6
Golden Buffs ... ... ,,	9	12	6
Dapple Light ... ... ,,	10	7	6
Best Blue Pressed Staffs (London Stations) ... ,,	28	15	6
,, Bullnose (London Stations) ... ... ,,	29	9	6
Blue Wire Cuts (London Stations) ... ... ,,	25	19	0
Midhurst Lime Bricks (London sites) ... ... ,,	10	8	0
Uxbridge Whites (London sites) ... ... ,,	9	17	0
Special Purpose Sandlime Bricks (London sites) ... ,,	7	18	6
2½ in. Best Stourbridge Fire Bricks (London Stations) ... ... ,,	27	16	3
3 in. do. (London Stations) ... ... ,,	33	8	0
2⅞ in. Moler Flue Bricks (London sites) ... ... ,,	36	0	0
2⅛ in. Machine-made Sandfaced Red Facings (London sites) ... ... ,,	15	8	6
2⅛ in. Machine-made Multi Red Facings (London sites) ... ... ,,	15	13	6
2⅛ in. Hand-made Sandfaced Red Facings (London sites) ... ... ,,	15	13	6
2⅝ in. Hand-made Sandfaced Multi-Colour Facings (London sites) ... ... per 1,000	16	8	6
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London sites) ... ... ,,	18	19	0
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites) ... ... ,,	18	19	0
Rubber Bricks for gauged arches (London sites) ... ,,	42	17	6
2⅛ in. Surrey Clamp Burnt Multi Stock Facings (London sites) ... ... ,,	13	16	6
2⅛ in. Surrey Kiln Burnt Multi Stock Facings (London sites) ... ... ,,	15	6	0
Glazed Bricks (London sites), White, Ivory, Brown—			
Stretchers ... ... ,,	64	0	0
Headers ... ... ,,	63	0	0
Quoins, Bullnose and 4½ in. Flats ... ... ,,	80	0	0
Double Stretchers ... ... ,,	85	0	0
Double Headers ... ... ,,	77	10	0
One side and two ends ... ... ,,	87	0	0
Two sides and one end ... ... ,,	89	10	0
Splays and Squints ... ... ,,	83	0	0

Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 25% for Best quality and plus 25% less 10% for Second quality.

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District.)

	Minimum lorry loads		£	s.	d.
HOLLOW CLAY PARTITION BLOCKS (Keyed)					
*2 in.	140 yds.	per yd. sup.	4	5	
*2½ in.	140 yds.	,,	4	8	
*3 in. (3 cavity) ...	120 yds.	,,	5	5	
BUILDING BLOCKS (Keyed)					
*3 in. (6 cavity) ...	110 yds.	,,	5	7	
*4 in. (6 cavity) ...	95 yds.	,,	6	10	
6 in. (8⅝ in. × 5⅝ in.)	1,250 blocks	per 1,000	26	18	0

* Half blocks at no extra charge.

CLINKER CONCRETE					
2 in.	100 yds.	per yd. sup.	3	9	
2½ in.	85 yds.	,,	4	4	
3 in.	75 yds.	,,	5	3	
4 in.	55 yds.	,,	6	5	
CRANHAM					
2 in.		,,	6	9	
2½ in.		,,	7	5	
3 in.		,,	8	9	
4 in.		,,	10	9	
4½ in. Load bearing quality		,,	11	10	
MOLER PARTITION BLOCKS					
2 in.	150 yds.	,,	16	3	
2½ in.	120 yds.	,,	16	6	
3 in.	100 yds.	,,	16	10	
4 in.	90 yds.	,,	20	0	
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE					
2 in.	100 yds.	,,	5	10	
2½ in.	80 yds.	,,	7	0	
3 in.	65 yds.	,,	8	2	
4 in.	50 yds.	,,	9	8	
4½ in.	44 yds.	,,	10	4	
6 in.	33 yds.	,,	13	10½	
THERMALITE-YTONG PARTITION BLOCKS					
2½ in.	144 yds.	,,	7	1	
THERMALITE-YTONG LOADBEARING INSULATING BLOCKS					
3 in.	120 yds.	,,	8	6	
4 in.	90 yds.	,,	11	1	
5 in.	72 yds.	,,	13	10	
6 in.	60 yds.	,,	16	7	
8½ in.	42 yds.	,,	1	3	9
FLOOR BLOCKS AND FILLER TILES					
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads		per 1,000	34	1	0
4 in. do.		,,	36	10	0
5 in. do.		,,	43	15	0
6 in. do.		,,	49	19	0
7 in. do.		,,	61	8	0
8 in. do.		,,	71	19	0
12" × 3" × ⅝" Filler Tiles in multiples of 10 tiles		per 1,000 multiples	42	15	0
12" × 4" × ⅝" do. do.			73	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Revised Standard List (Nov., 1956) prices delivered London Area.

Delivered ex Merchants Wharf or Depot or Manufacturers Works.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality ...	−7½%	+8⅓%	+15%
BSS Best do. ...	+10% −7½%	+10% +8⅓%	+10% +15%
Tested Quality	+37½% −7½%	+37½% +8⅓%	+37½% +15%
BSS Tested do.	+47½% −7½%	+47½% +8⅓%	+47½% +15%

STONEWARE DRAIN PIPES, etc.—*continued*

	£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ... per 1,000	11	5	6
4 in. do. ... ... „	14	16	6
6 in. do. ... ... „	30	14	0
9 in. do. ... ... „	58	9	0

DAMP COURSE

Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area ... ... per yd. sup.		3	9
Asbestos base ditto 7 lb. per yd. sup. do. do. „		5	6
Lead lined bitumen ditto 9½ lb. per yd. sup. do. „		12	6
18 in. × 9 in. British damp course slates ... ... per 1,000	43	8	11
14 in. × 9 in. do. do. ... ... „	32	8	2
9 in. × 9 in. do. do. ... ... „	18	18	9
18 in. × 4½ in. do. do. ... ... „	19	19	9
14 in. × 4½ in. do. do. ... ... „	15	18	3
9 in. × 4½ in. do. do. ... ... „	10	14	3

STONE

Bath Stone—			
Monks Park ... ... per ft. cube		8	1½
St. Aldhelm Box Ground ... ... „		9	1½
Delivered in railway trucks at South Lambeth B.R. Western Region.			
Doulting Stone Random Blocks. Delivered London area „		8	11
Beer Stone. Delivered London area ... ... „		8	5
Portland Stone—			
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ... ... „		8	5
Yorkshire Stone—Blue Robin Hood Quality.			
Delivered to site London in 6-ton lots.			
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ... ... per ft. cube	3	17	9
12 in. × 6 in. do. do. ... ... „	2	15	6
12 in. × 3 in. Plain coping, twice throated ... „	2	3	0
12 in. × 3 in. Weathered and twice throated coping „	2	17	3
14 in. × 6 in. do. do. ... ... „	2	11	9
4½ in. × 9 in. Plinth, rubbed on top and face ... „	2	6	3
3 in. sawn two sides Slabs, random sizes ... ... per ft. sup.		8	3
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ... per ft. cube	1	8	3
Do. do. fair one edge for fair faced brickwork ... ... „	1	13	6
Hard York—			
12 in. × 2 in. Square Steps, rubbed on top and edge per ft. run		10	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front ... ... per ft. cube	2	12	9
12 in. × 6 in. Plain Steps, rubbed top and front „	2	6	3
2 in. Rubbed and Jointed Paving, given sizes ... per ft. sup.		9	4
2 in. Sawn Paving, edges squared, in random sizes per yd. sup.	3	5	3

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	19	0
Hand-made Pantiles Berkshire district	55	18	0
Hand-made Double Roman Bridgwater district	59	5	0
Hand-made 10½ × 6½ tiles Berkshire district	15	9	0
Machine-made 10½ × 6½ Staffordshire district	14	1	9
Hand-made Hip and Valley tiles per doz.	1	11	3
Machine-made Hip and Valley tiles do.	1	8	0
Concrete tiles 10½ × 6½	8	5	6
do. Interlocking (49S)	19	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.			
24 × 12	143	15	10
22 × 12	116	17	4
22 × 11	105	10	10
20 × 12	99	0	1
20 × 10	94	16	9
18 × 10	65	16	9
18 × 9	57	14	0
16 × 10	51	17	0
16 × 8	40	11	9

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—					
Joinery quality	Ex Wharf	per standard	£115 to £140		
Carcassing quality	do.	„	£97 to £102		
1 in. Tongued and Grooved Flooring	do.	„	£110	0	0
Hardwood—					
Mahogany—African S.E.	do.	per ft. cube	1	10	0
do. Honduras do.	do.	„	3	5	0
Oak European do.	do.	„	2	5	0
do. Japanese do.	do.	„	2	10	0
do. English Logs sawn	do.	„	1	17	6
Teak 8 in. average S.E.	do.	„	3	17	6
Walnut African Logs sawn	do.	„	1	5	0

DOORS (in Lots I-II)

	£	s.	d.
Delivered London area.			
1¼ in. 4 Horizontal Panel. Pattern 4 in. deal			
2 ft. 0 in. × 6 ft. 6 in. ... ... each	1	12	0
2 ft. 3 in. × 6 ft. 6 in. ... ... „	1	13	0
2 ft. 6 in. × 6 ft. 6 in. ... ... „	1	14	0
2 ft. 9 in. × 6 ft. 6 in. ... ... „	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... „	2	9	0
2 ft. 9 in. × 6 ft. 6 in. ... ... „	2	11	6
2 in. 2 Panel, top panel open. Pattern 2 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... „	2	1	9
2 ft. 9 in. × 6 ft. 6 in. ... ... „	2	3	6

SUNDRIES

Delivered London area.			
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ... ... per yd.		5	8
1½ in. do. (67 yds. to 1 ton) ... ... „		7	4
2 in. do. (52 yds. to 1 ton) ... ... „		8	11½
2½ in. do. (45 yds. to 1 ton) ... ... „		10	3
3 in. do. (39 yds. to 1 ton) ... ... „		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
½ in. imported insulation Board, quantities over 5,000 sq. ft. per 100 sq. ft.	2	2	6
⅛ in. Hardboard do. ... ... „	2	1	6
7/16 in. do. do. ... ... „	3	2	6
7/16 in. Asbestos Flat Building Sheets ... ... per yd. sup.		3	8
¼ in. do. ... ... „		4	10
Roofing Felt, 1-ply ... ... „		1	9
do. 2-ply ... ... „		2	2½
Best Scotch Glue in slabs ... ... per ½ cwt.	5	0	0
do. pearl ... ... „	5	5	0
Croid Glue ... ... 28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots) ... ... per ton	70	10	0
do. 4 in. and up (1-ton lots) ... ... „	67	0	0
Wire Nails, 3 in. (4-cwt. lots) ... ... per cwt.	3	6	10
do. 4 in. and up (4-cwt. lots) ... ... „	3	6	3

METALS

STEEL JOISTS, ETC.

Basis Joists—			
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in. plain cut to lengths delivered London area ... ... per ton	48	2	6
Extra for sizes			
3 in. × 1½ in. 4 in. × 1½ in. ... ... „	3	10	0
3 in. × 3 in. ... ... „	2	10	0
4 in. × 3 in. ... ... „	2	5	0
10 in. × 4½ in. ... ... „	1	10	0
5 in. × 2½ in. 5 in. × 3 in. ... ... „	1	15	0
4½ in. × 1½ in. ... ... „	3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. „		15	0
6 in. × 3 in. 24 in. × 7½ in. ... ... „	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. } „	1	5	0
9 in. × 4 in. 10 in. × 5 in. ... ... }			
12 in. × 5 in. 22 in. × 7 in. ... ... „	1	0	0
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in. }			
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. }			
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. } „		10	0
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in. }			
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in. }			
Steel angles average price ... ... „	50	5	0
Steel tees average price ... ... „	51	5	0
Fabricated work delivered London—			
R.S. Joists cut and fitted ... ... „	65	12	6
Compound girders ... ... „	71	15	0
Stanchions ... ... „	77	2	6
Compound stanchions ... ... „	81	10	0
In Roof Work—Trusses and Purlins ... ... „	94	15	0
Average prices not for awkward work.			
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area ... ... per cwt.	5	7	6

FERRO-CONCRETE BARS

Mild Steel Ferro-Concrete bars British manufacture to BSS785 ex London Stock ⅝ in. diam., and upwards ... ... per ton	46	5	0
½ in. diam. ... ... „ extra	8	12	0
7/16 in. do. ... ... „	6	12	0
⅜ in. do. ... ... „	4	12	0
⅓ in. do. ... ... „	3	2	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Class A	+ 14½%	+ 9½%	Light + 36%	Malleable List
Class B	+ 26 %	+ 21 %	Heavy + 43½%	−25% +40%
Class C	+ 44¾%	+ 39¾%		
Black—				
Class A	− 8½%	− 13½%	Light + 22¾%	Malleable List
Class B	+ 4½%	− ¾%	Heavy + 30¼%	− 25%
Class C	+ 19¼%	+ 14¼%		

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/10½	3/5	1/–
3½ in.	4/2½	3/9	1/–
4 in.	5/5½	4/3	1/6
4½ in.	5/11½	4/9	1/9
5 in.	6/8	5/1	2/1

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	5/–	4/6	1/2
3½ in.	5/7	4/6	1/6
4 in.	6/2	4/9	1/9
4½ in.	6/8	5/5	2/1
5 in.	7/3½	6/2	2/4

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	8/3½	4/3	6/1
2½ in.	8/3½	4/9	8/2
3 in.	9/3½	5/11	8/10
3½ in.	10/7	7/–	10/7
4 in.	12/3	8/5	12/7

L.C.C. Coated Soil Pipes

2 in.	9/5	7/3	8/10
2½ in.	9/9½	8/–	11/–
3 in.	11/1½	8/10	13/–
3½ in.	12/5½	11/–	15/2
4 in.	14/2	12/3	17/11

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 17½% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes

In 9-fts.	cwt.	qt.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	33/6	23/–	41/–
6 in.	2	0	1	49/2	61/3	98/–

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	per yd.	4/3	4/6½	5/6	7/3½
Shoes	each	2/9	3/–	3/7	4/10
Single Branches	,,	4/4	5/1	6/1	8/6
Bends square or obtuse	,,	3/–	3/4	4/4	6/1
Swan Necks 4½ in. proj.	,,	3/4	4/4	4/10	6/9
,, 6 in. ,,	,,	3/7	4/4	5/5	7/3

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	4/1	4/5½	5/4	6/4½
Drop ends	each	3/3	3/9	4/5	5/2
Stop ends	,,	1/–	1/1	1/2	1/4
Angles	,,	3/4	3/10	4/8	5/5
Nozzles	,,	3/3	3/9	4/5	5/2
Union Clips	,,	1/7	1/11	2/4	2/8

Asbestos Half-Round Gutters and Fittings

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	2/10	3/4½	3/5½	4/1	5/8
Drop ends	each	2/4	2/9	3/–	3/4	4/10
Stop ends	,,	–/11	1/–	1/1	1/2	1/4
Angles	,,	2/8	3/–	3/4	3/7	4/10
Nozzles	,,	2/4	2/9	3/–	3/4	4/10
Union Clips	,,	1/2	1/3	1/4	1/6	2/3

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	49 7 6
Mild Steel Bars	43 18 0
Mild Steel Hoops	44 2 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	58 2 6
24 gauge	60 12 6
26 gauge	63 12 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	66 17 0
24 gauge	70 7 0
26 gauge	75 12 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	68 7 0
24 gauge	71 17 0
26 gauge	77 2 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1470 S1C 18 SWG (36 in. wide)	per lb.	2 10½
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	,,	2 8
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	,,	2 9½
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	,,	2 7½
Coiled strip for flashing 99.7% purity 22 SWG (12 in. wide)	,,	3 0
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 12 0
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31¾ in. × 20 SWG	,,	1 17 11
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31¾ in. × 20 SWG	,,	1 11 2
Extruded section BS 1476 E1C simple moulding	per lb.	2 8½
Extruded section BS 1476 E1C 1 in. diam. round	,,	2 6
Extruded section BS 1476 HE1WP simple angle	,,	2 11½
Extruded section BS 1476 HE10WP 1 in. diam. round	,,	2 10½
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG	,,	4 3½
Tubing BS 1471 HT10WP 1½ in. O/D × SWG	,,	5 6½

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

M.O.H. All per doz.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/–	128/8				
Toilet bib cocks for iron	109/–	158/5				
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–

	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5

	1¼ × 6 lb.	1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.
Lead P. trap with brass cleaning screws	72/–	90/–	144/–	246/–
Lead S. trap do.	87/–	108/–	177/–	318/–

Solder	s. d.
Plumbers' 1 cwt. lots	351/– 14 lb. lots per lb. 3 6
Tinmen's ,, ,,	427/– ,, ,, 4 1
Blow pipe ,, ,,	430/– ,, ,, 4 3

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 28¾d. per lb. plus gauge and manufacturing extras as follows. Minumum quantities, 3 cwt.

	Extra d.		d.		d.
⅛ in. × 19 gauge	14	Total per lb.	42⅜	approx per ft.	11½
¼ in. × 19 ,,	12¾	,, ,,	40½	,, ,,	16
1 in. × 18 ,,	10¾	,, ,,	39½	,, ,,	24½
1¼ in. × 18 ,,	10½	,, ,,	38⅝	,, ,,	29½
1½ in. × 18 ,,	10¼	,, ,,	38⅛	,, ,,	35½
2 in. × 17 ,,	11⅛	,, ,,	40½	,, ,,	56½

		£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	£277 5 0

Zinc

		£ s. d.
Sheet Zinc 10 gauge (25 SWG)	5 cwt. lots upwards per cwt.	8 9 0
do. 12 gauge (23 SWG)	,, ,,	8 6 6
do. 14 gauge (21 SWG)	,, ,,	8 5 3

Brass Tubes

		s. d.
Brass tubes basic price, plus gauge and manufacturing extras	per lb.	1 11⅞

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	150 15 0
Lead Water Pipe in coils	,,	153 0 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia.	,,	154 10 0
,, over 4 in. dia.	,,	156 10 0
Lead Gas or Untinned Compo pipe	,,	154 10 0

Extras over Basis for quantities under 1 ton		£ s. d.
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	,,	4 0
1 cwt. do. 3 cwt.	,,	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £103 10s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

				£ s. d.
Coarse Pink in 1-ton loads and over	Delivered on Site		per ton	8 2 3
do. White	do.	do.	,,	8 11 9
Siripite Coarse	do.	do.	,,	8 4 3
do. Fine	do.	do.	,,	8 12 3
Blue Lias Lime in 6-ton loads			,,	6 14 6
Hydrated Lime (Grey)	do.		,,	5 17 6
do. (White)	do.		,,	6 5 0
Lump Lime (Grey)	do.		,,	5 7 0
do. (White)	do.		,,	5 14 6
White Keen's or Parian Cement in 1-ton loads			,,	11 11 9
Pink Keen's or Parian Cement in 1-ton loads			,,	11 6 6
Granite Chips in 6-ton loads			,,	2 10 6
Hair			per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery.	Delivered site		per yd.	2 4
1,200 yds.			,,	2 3½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery.	Delivered site		,,	3 0
1,200 yds.			,,	2 11½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery	Delivered site		,,	2 7
1,200 yds.			,,	2 6½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery.	Delivered site		,,	3 3
1,200 yds.			,,	3 2½

PAINT AND DISTEMPER

	£ s. d.
Delivered London area	
Ceiling Distemper ... ... per cwt.	1 7 6
Washable Distemper ... ... „	5 5 0
Gloss Paint ... ... per gal.	2 12 0
Snowcem cement paint (in 1 cwt. drums) ... ... per cwt.	3 11 0
LEAD PRODUCTS AND OILS	
Ground White Lead, 1 cwt. kegs ... ... per cwt.	9 11 6
Genuine White Lead Paint, 1-19 gal. lots in 1 gal tins per gal.	3 9 6
Genuine Red Lead, Dry, 1 cwt. keg ... ... per cwt.	7 9 9
Genuine Linseed Oil Putty, 1 cwt. keg ... ... „	2 17 0
Size XD quality 28 lb. ... ... per tin	9 0
Raw Linseed Oil (5 gal.) drums extra ... ... per gal	17 3
Boiled Linseed Oil (5 gal.) do. ... ... „	17 9
SUNDRIES	
Turpentine substitute (5 gal.) drums extra ... ... „	6 7½
do. do. (40 gal.) do. do. ... ... „	5 11⅛
Solignum, Brown (5 gal. cans) Exterior ... ... „	8 4
Creosote (40 gal. barrels) ... ... „	2 0
Paste Powder (1 lb. packets) ... ... per lb.	2 0
White Lining Paper ... ... per piece	1 1

VARNISHES, etc.

	£ s. d.
Delivered London area	
Oak Varnish, Outside or Inside ... ... per gal.	2 0 0
Oak Pale Copal do. ... ... „	2 0 0
Hard Drying Oak for Inside ... ... „	2 5 0
Crystal Paper Varnish do ... ... „	2 8 0
Eggshell Flat Varnish do. ... ... „	2 6 0
Finest Carriage Varnish ... ... „	2 7 0
Front Door Varnish ... ... „	2 4 0
Japan Gold Size ... ... „	1 18 0
Black Japan ... ... „	1 16 0
Brunswick Black ... ... „	1 12 0
Berlin Black ... ... „	1 10 0
Terebene ... ... „	1 17 0
Knotting (1 gal. bottles free)... ... ... „	2 8 0
French and Brush Polish (do.) ... ... „	2 2 0

GLASS

	per ft. super s. d.
Delivered London area	
18 oz. Sheet Glass Ordinary Glazing Quality- Cut Sizes	7½
24 oz. „ „ „ „ „ „	9½
26 oz. „ „ „ „ „ „	1 0½
32 oz. „ „ „ „ „ „	1 3½
⅛ in. Rolled Plate	10⅝
⅛ in. and ¼ in. Rough Cast	1 2½

	Per ft. super s. d.
⅛ in. Figured Rolled and Cathedral, Standard patterns:	
White Group 1	10½
do. Group 2	1 2
do. Standard Tints	1 8
do. Special Tints	3 4
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	1 3½
¼ in. Wired Cast	1 5
¼ in. Georgian Wired Cast	1 5½
Hollow Glass Blocks—	Each
P.B.2 5½ × 5½ × 3⅞ in.	3 3
P.B.3 7¼ × 7¼ × 3⅞ in.	5 0
P.B.32 7¼ × 7¼ × 3⅞	5 0
Radiused Corner Blocks to match up with—	
P.B.2	6 0
P.B.3	7 6
P.B.32	7 6
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 10
„ „ „ 5 ft. sup.	4 9
„ „ „ 45 ft. sup.	5 7
„ „ „ 100 ft. sup.	6 0
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality —Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	9 0
Not exceeding 180 ft. sup. or ditto	12 1
Not exceeding 200 ft. sup. or ditto	17 2
Plates exceeding 200 ft. sup. prices on application. Substances other than ¼ in. Polished Plate at Special Prices.	

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s. d.
18 oz. sheet O.Q.	3,000	4⅞
24 oz. „ „	2,000	6½
26 oz. „ „	2,000	8⅛
32 oz. „ „	2,000	11⅜
⅛ in. Rolled Plate	1,000	8⅛
⅛ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000	8⅛
do. Group 2	1,000	1 5½
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000	11⅞
⅛ in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	1 0
¼ in. Wired Cast, Hexagonal...	2,000	1 2
¼ in. Georgian Wired Cast	2,000	1 2½

The Builder

CURRENT RATES OF WAGES

AS FROM FEBRUARY 4, 1957. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1
Craftsmen	4/4½	4/4
Labourers	3/10	3/9½

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A1
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A1
Amersham	A1
Ammanford	A
Andover	A1
Anglesey, Isle of	A1
Ardingly	A1
Arundel	A1
Ascot	A1
Ashbourne RD	A1
Ashbourne UD	A1
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A1
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A1
Atherstone RD	A
Attleborough	A1
Axminster	A1
Aylesbury	A1
Aylsham	A1
Bagshot	A1
Bakewell UD	A1
Banbury	A1
Bangor	A1
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A1
Barrow-in-Furness	A
Barrow-upon-Soar RD (part Thrussington)	A1
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A1
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A1
Bideford	A1
Biggleswade	A1
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A1
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A1
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A1
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A1
Bognor Regis	A1
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A1
Bracknell	A1
Bradford CB	A
Bradford-on-Avon	A1
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of ...	‡A1
Brent Knoll	A1
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A1
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A1
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A1
Buckingham	A1
Buckley	A
Bungay	A1
Burnham-on-Crouch	A1
Burnham-on-Sea	A1
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A1
Caernarvonshire, Cnty. of	‡A1
Calder Valley	A
Camberley District	A1
Cambridge	A
Cannock UD	A
Canterbury	A1
Cardiff	A
Cardiganshire, County of	‡A1
Carlisle	A

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire, Cnty of	‡A1
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A1
Charmy Down	A
Chatham District	A
Chatteris	A1
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A1
Chipping Norton	A1
Chipping Sodbury	A1
Chippenham (inc. Chippenham Within and Hardenhuish)	A1
Chorley	A
Cirencester	A1
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A1
Corsham District	A
Coventry CB	A
Cranbrook	A1
Cranleigh	A1
Cranwell Aerodrome Site	A
Crawley	A1
Crewe	A
Crewkerne	A1
Cromer	A1
Crook and Willington UD	A
Crowborough	A1
Cuckfield	A1
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A1
Darwen	A
Daventry MB	A1
Deal	A1
Denbigh Town	A1
Derby CB	A
Devizes	A1
Devon, County of	‡A1
Dewsbury CB	A
Didcot	A1
Diss	A1
Doncaster CB	A
Dorchester	A1
Dorking	A
Dorset, County of	A1
Dover	A1
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val.	A
East Grinstead District	A1
East Kesteven RD	A1
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A1
Ely	A1
Epping	A
Evesham MB	A1
Exeter	A
Exmouth	A1
Fakenham	A1
Falmouth	A1
Fareham	A
Faversham	A1
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A1
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A1
Gillingham (Kent)	A
Glastonbury & Street	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A1
Godalming	A1
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A1
Guildford District	A1
Halesowen MB	A
Halifax CB	A
Halstead	A1
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A1
Harwich	A
Haslemere	A1
Hastings	A1
Hatfield (Herts)	A
Havant	A
Haywards Heath	A1
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A1
Hereford	A1
Herefordshire, Cnty. of	‡A1
Herne Bay	A1
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A1
Horncastle UD	A1
Horsham	A1
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A1
Huntington (Staffs)	A
Ilfracombe	A1
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A1
Isle of Thanet	A1
Isle of Wight	A1
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteignton	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A1
Leominster	A1
Letchworth	A
Lewes	A1
Lichfield MB	A
Lincoln CB	A
Liskeard	A1
Littlehampton	A1
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A1
Llangollen	A1
London	*
Long Eaton	A
Looe	A1
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A1
Ludlow MB	A1
Ludlow RD	A1
Luton	A
Lyme Regis	A1
Lyneham (Devon)	A1
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A1
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A1
Margate	A1
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A1
Martock	A1
Maryport	A
Matlock UD	A
Melksham	A1
Melton Mowbray UD	A1
Merionethshire	A1
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A1
Milford Haven UD	A1
Minehead	A1
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A1
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A1
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A1
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A1
Newquay	A1
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A1
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A1
Oakham UD	A1
Okehampton	A1
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A1
Oundle UD	A1
Oxford	A
Oxted	A1
Padstow	A1
Paignton	A1
Par	A1
Pembrokeshire (except Milford Haven)	A1
Penmaenmawr	A1
Penrith UD	A1
Penzance	A1
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A1
Pickering	A1
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Porthcawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A1
Pudsey MB	A
Pulborough	A1
Radnorshire, County of	‡A1
Ramsgate	A1
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A1
Rochdale	A
Rochester	A
Ross-on-Wye	A1
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A1
St. Albans	A
St. Austell	A1
St. Helens	A
St. Neots	A1
Salisbury City	A1
Salisbury Plain	A1
Sandy	A1
Sawbridgeworth	A
Saxmundham	A1
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A1
Selby UD	A
Sevenoaks	A
Shaftesbury	A1
Sheerness	A1
Sheffield MB	A
Shepton Mallet	A1
Sherborne	A1
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A1
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A
Smethwick CB	†A
Snettisham	A1
Solihull UD	A
Somerset, County of	‡A1
Southampton and Eastleigh	A
Southend-on-Sea Dist.	A
Southport	A
South Shields CB	A
Southwold	A1
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A1
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A1
Tavistock	A1
Tenterden	A1
Teignmouth	A1
Tewkesbury	A1
Thames Haven	A
Thetford	A1
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area North of to Billericay	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Tring	A1
Trowbridge	A1
Truro	A1
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A1
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Walsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A1
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A1
Wells (Norfolk)	A1
Wells (Somerset)	A1
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A1
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A1
Wickford	A
Widnes	A
Wigan	A
Wigton	A1
Wilmslow	A
Wilts. County of	‡A1
Wimborne	A1
Wincanton	A1
Winchester	A1
Windermere	A1
Wisbech	A1
Witham	A1
Withernsea UD	A1
Woking	A1
Wokingham	A1
Wolverhampton CB	A
Wolverton District	A1
Woodbridge	A1
Woodhall Spa UD	A1
Woodstock	A1
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A1
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A1
Yate	A1
Yeovil Borough	A1
York CB	A
Ystalyfera	A

*For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 6d.; Labourers, 3s. 11½d. In the case of London the rate beyond the 12-mile radius is: Craftsmen, 4s. 5½d.; Labourers, 3s. 11d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 6d. per hour. Women engaged on work other than craft processes, 3s. 2d. per hour.

For Building Trade Wages in Scotland see page 707

NEWS IN BRIEF

Building Employment

THE number of workers, 1,494,000, engaged in the building and contracting industry in February was 8,000 lower than for January.

Weather Helps Housebuilding

Because of the mild spring, Leeds Corporation has completed nearly three times as many houses as in the same period last year. In January, 145 houses were completed compared with 62 last year; in February 134 compared with 31; while private builders completed 115 in January and 59 in February. A larger labour force has also been used.

President Re-elected

Mr. L. V. C. Roy, managing director of Messrs. Roy & Partners, Ltd., was recently re-elected president of the Manchester and District Branch of the Federation of Master Builders. This branch, with its headquarters at Cromford House, Cromford-court, Manchester, 4, has now over 450 members and is one of the largest in the country.

Land Surveying Course

The Department of Architecture and Surveying, Brixton School of Building, is to hold a course of five demonstration lectures in the field on the use and adjustment of the Level and Theodolite at the college on June 17, 19, 24, 26 and July 1 from 6 p.m. to 8.30 p.m. Fee for the course is 16s. 6d. Applications to Head of Department of Architecture and Surveying, Ferndale-road, SW4.

Films on Automation

The Central Office of Information issues the first supplementary part of the 'Films for Industry' catalogue, issued in October, 1955. The present supplement contains details of nearly 70 films which are available from the Central Film Library and its branch libraries in Scotland and Wales. Of interest to a wide variety of industrial audiences, they are available on hire or free loan from the Central Film Library, including films on automation subjects.

International Congress

The second International Congress of the Precast Concrete Industry will be held from June 22-28, in Wiesbaden. It is promoted by professional organisations of several European countries. In conjunction with the Congress the First International Precast Concrete Machinery Exhibition will take place, where machinery, moulds and transporting equipment will be on show. Those interested are requested to apply to the Bundesverband der Betonsteinindustrie eV, Bonn/Rhein, Hausdorffstrasse 191, who are responsible for the organising of the Congress.

Technical Education Courses

The eighth annual report for 1955-56 of the London and Home Counties Regional Advisory Council for Higher Technological Education, shows a phenomenal growth of interest in high-level courses of the sandwich type. During the year sandwich diploma courses were operating in seven colleges in the area and in that session, especially in May, June and July, 1956, the Council's support was requested by local education authorities and governing bodies for courses of this kind, each of four or five years' duration, to operate in 1956-57 in some 20 colleges. This is a remarkable increase which has no parallel in the recent history of technical education. Courses in operation or proposed include building, civil and structural engineering.

Controlled Boiler

The solid fuel boiler illustrated in *The Builder*, March 29, by Watts Automatic Boilers of Lydney, Glos., has an output rating of 275,000 B.Th.U./hr., and not as stated. The reference number of this boiler is 275A.

Motor-car Parking Garages

Following the recent announcement that Messrs. Wm. Wadsworth & Sons Ltd., of Bolton, had produced Britain's first 'pigeon-hole' vertical parking garage, the company now announces important new developments. A preliminary design for a 600-car garage has been prepared for and discussed with the Birmingham City Engineer, Sir Herbert Manzoni. Further discussions are to take place. In addition to a staff passenger lift, four motor-car lifts are proposed, possibly with electronic variable voltage drive, to run at approximately three times the present speed. The 600 cars would be stored on seven floors, with an additional (top) floor for servicing, washing, etc., on a site of 1,760 sq. yd. (square in plan).

Appliance Fixers' Panel Proposed

The setting up of a panel of approved firms of appliance fixers, with a distinctive sign for showroom display, is one of the principal recommendations of a joint working party on the installation of domestic solid fuel appliances. The working party was formed as the result of a conference convened by the CUC last June.

Basis of the recommendations is to give the building and allied industries greater responsibility for ensuring that operatives are qualified to fix appliances. The working party hopes that in time it might be possible for the necessary instruction to be part of the training of bricklayer and plumber apprentices. Co-operation would be sought from national and local government departments, architects, the building and allied industries and appliances distributors to ensure that only Panel firms would be employed for fixing.

PERSONAL COLUMN

LT. COL. SIR THOMAS C. R. MOORE, BT., CBE, MP, a director of Eastwoods, Ltd., has been appointed chairman of the company and of all subsidiary companies in the Eastwoods group.

MR. M. J. J. RICHARDS has been appointed manager of the London branch sales office of the British Aluminium Co., Ltd., at Park-avenue, North Circular-road, NW10, from May 16, in succession to Mr. W. J. Allen, who retires from the company's service on that day.

To maintain closer technical contact with manufacturers fitting their engines, especially during the early stages of new developments, the Villiers Engineering Co., Ltd., two-stroke and four-stroke engine manufacturers, of Marston-road, Wolverhampton, have appointed MR. GEORGE A. BOWER as a technical representative.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

F. P. Dodsworth, Ltd. (579234.) Regd. Feb. 28. Bldrs. and contrs. Nom. cap.: £3,000. Dir.: Mary B. Dodsworth, Laurelwood, 29, Denecholm, Monkseaton.

P. H. Wheeler, Ltd. (579265.) Regd. March 1. 5, Elmer-approach, Southend-on-Sea. Bldrs. contrs., etc. Nom. cap.: £5,000. Dir.: P. H. Wheeler.

Wallwork & Williams, Ltd. (579281.) Regd. March 1. Hollins-chmbrs., 64a, Bridge-st., Manchester, 3. Bldrs. Nom. cap.: £100. Dir.: J. Williams.

Austin Spraggs, Ltd. (579315.) Regd. March 4. 359, Havant-rd., Farlington, Portsmouth. Bldrs., contrs. Nom. cap.: £4,000. Dir.: A. C. E. Spraggs.

Fishergate Builders, Ltd. (579320.) Regd. March 4. Melbourne Villa, Melbourne-st., York. Nom. cap.: £100. Dir.: J. P. Gallagher.

Wilkinson Developments (Skipton), Ltd. (579352.) Regd. March 4. Beverley-hse., Little Horton-lane, Bradford. Nom. cap.: £1,000. Dir.: J. P. M. Carr.

John Evans & Co., Ltd. (579372.) Regd. March 4. Bldrs. Nom. cap.: £4,000. Dir.: E. H. Jobbins.

A. W. Thomas & A. Leonard, Ltd. (579399.) Regd. March 5. Nom. cap.: £1,000. Bldrs. Dir.: A. W. Thomas.

F. J. Newman & Co., Ltd. (579412.) Regd. March 5. Bldrs. Nom. cap.: £300. Dir.: F. J. Newman, Hill Hook Hse., Clarence-rd.

H. Goodsell & Son, Ltd. (579412.) Regd. March 5. Bldrs., etc. Nom. cap.: £35,000. Sub.: Mrs. D. K. Goodsell, 69, Chatham-rd., Maidstone.

Picton Developments (Builders), Ltd. (579436.) Regd. March 5. 107, Mumbles-rd., Swansea. Nom. cap.: £10,000. Permt. dir.: Rt. Hon. Duke of Beaufort, Badminton, Glos.

B. G. Waller, Ltd. (579451.) Regd. March 5. Back-lane, Preston, nr. Hitchin, Herts. Bldrs. Nom. cap.: £10,000. Dir.: B. G. Waller.

M. Dwyer, Ltd. (579433.) Regd. March 5. 27, Brazennose-st., Manchester, 2. Bldrs., contrs. Nom. cap.: £1,000. Dir.: M. Dwyer.

F. R. Hitchins (Builders), Ltd. (579462.) Regd. March 5. 335, White Hart-lane, Tottenham, N17. Nom. cap.: £100. Dir.: F. R. Hitchins.

C. A. Peacock (Lowestoft), Ltd. (579485.) Regd. March 6. 46, Gorleston-rd., Oulton Broad, nr. Lowestoft. Bldrs. Nom. cap.: £5,000. Dir.: C. A. Peacock.

Cummings & Morrish, Ltd. (579490.) Regd. March 6. Bldrs. 102, Evering-ave., Parkstone, Dorset, etc. Nom. cap.: £1,000. Permt. dir.: F. H. Cummings.

Wheeldon Bros, Ltd. (579532.) Regd. March 6. Joseph-st., The Clusters, Belper, Derbys. Bldrs. Nom. cap.: £12,000. Permt. dir.: F. W. Wheeldon.

Barnes & Peters, Ltd. (579551.) Regd. March 7. 135, Warham-st., SE5. Bldrs. Nom. cap.: £100. Dir.: O. S. Barnes.

Read & Schepens, Ltd. (579581.) Regd. March 7. Leopold-st., Loughborough, Leics. Bldrs., contrs., etc. Nom. cap.: £5,000. Permt. dir.: L. Schepens.

S. B. Portable Building Co., Ltd. (579584.) Regd. March 7. Beverley-hse., 34, Little Horton-lane, Bradford, 5. Nom. cap.: £1,000. Dir.: C. M. R. Wilkinson.

Wm. Thompson & Sons (Leeds), Ltd. (579592.) Regd. March 7. 19, Sheepscar-st., Leeds. Bldrs. Nom. cap.: £10,000. Dir.: M. Thompson.

Garrards (Sectional Buildings), Ltd. (579596.) Regd. March 7. Great Northern-st., Huddersfield. Nom. cap.: £100. Sub.: M. Burhouse.

Bushnell, Heavens & Wise, Ltd. (579719.) Regd. March 11. Commerce-hse., 6/8, Blagrave-st., Reading. Bldrs. Nom. cap.: £10,000. Dir.: R. J. Bushnell, Golspie.

Housing Progress, Ltd. (579734.) Regd. March 11. Bldrs. and contrs. Nom. cap.: £1,000. Sub.: Miss M. Idle, 18, Firville-st., Normanton, Yorks.

J

OVERSEAS BUILDING

From Our Own Correspondents

AUSTRALIA.—The Ford plant at Geelong, about 40 miles from Melbourne, is to be extended. Caterpillar of Australia, a subsidiary of the Caterpillar Tractor Company of USA is to spend more than £2m. erecting a new plant on its present factory site at Essendon, Melbourne, to manufacture crawler tractors. Another US company, Timken Roller Bearings, of Ohio, is to build a factory, probably at Ballarat, north of Melbourne, at a cost of £750,000. There are also big projects for Victoria including a £5m. hotel in Melbourne planned by Pan-American Airways, a Melbourne Brewery and a Melbourne City Development Association.

CHINA.—The Chinese Republic's first Five-Year plan of re-construction ends in December of this year, and some targets have been met. However, reports reaching Hong Kong from Peking indicate that a shortage of building materials may retard the final result in the construction of new factories. Since 1955 delays have been caused by a shortage of steel products, cast iron goods and cement. To improve production in these fields, the Chinese Government may be reluctant to sell coal to their Japanese market this year.

HONG KONG.—The Hong Kong and Shanghai Banking Corporation are to build a 10-storey extension to their Nathan-road, Kowloon, branch at an estimated cost of $400,000. In the new scheme, which has been designed by Wong Cho Tong, authorised architect, 9, Ice House-street, Hong Kong, the banking hall will be extended and some 17,000 sq. ft. of office and shop space provided. Value of the site has been given as $180 per sq. ft.

In connection with the development of Kai Tak Airport, Kowloon, it will be necessary to re-settle almost 200,000 people in 10 villages in the Chuk Yuen area. Plans are being drawn up by the Government to re-house the people in new estates at Li Cheng Uk and Lo Fu Ngam, in such a way that they can continue the cottage industries in which they have been engaged.

Hong Kong Jockey Club have donated $500,000 to build and equip a health centre at Taipo in the New Territories. The centre will include 24 maternity beds.

The Colonial Secretary the Hon. Mr. E. B. David, speaking in a debate on the Colony's budget, has hinted that a solution to the question of military lands in the centre of Victoria and Kowloon may soon be found. The central business area of the city would be almost doubled in size, and if the question can be settled, an opportunity will arise to reconstruct and create a great city centre. The land will, of course, be Government property, and it is hoped that a properly considered plan will be the basis for this important development.

The Government has rejected a proposal that it should promote three new hotels by investing public funds to build premises for the tourist trade. It believes that private enterprise has sufficient interest and resources to carry out the scheme without assistance.

ISRAEL.—The Board of the American Israel Paper Mills at Hadera have announced their decision to make a further investment in the construction of a pulp mill to produce 15,000 tons a year and another new factory to increase production. Following the visit of the Director of the Port of Le Havre to advise on the development of Eilat, the Ministry of Development have announced a plan for the construction of a deep water harbour to be built in three years. The execution of this plan will, however, depend on the improvement of communications with Eilat including the extension of the railway line to Eilat from Beersheba. Widening of the existing pier at Eilat has already been completed and the construction of a 100 metre pier for lighters is to commence shortly. A preliminary survey has been ordered for the construction of a small port at Acre capable of handling ships of up to 3,000 tons to serve as an outlet for the Acre and Nahariya industrial areas.

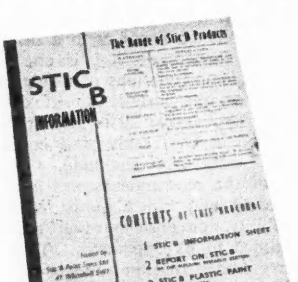
KENYA.—Tenders for the opening phase of Nairobi's £2,366,000 African housing scheme are now being examined by the Kenya Government's town planning officials; the scheme will be operated jointly by the Nairobi City Council and the Government. It will provide 5,000 homes for 25,000 Africans. Extensive research has been carried out into the nature of Kenya pumice rock which, with concrete, will be the main building material for the scheme. The Materials Laboratories of the Public Works Department, have, after exhaustive tests, stated that the material is an excellent building medium.

N. RHODESIA.—The Northern Rhodesia Government is negotiating with the Colonial Development Corporation for another £1,000,000 for housing purposes, which would be additional to the £2,000,000 which the Government has secured and earmarked for housebuilding.

SINGAPORE.—The Automobile Association of Singapore plans to build the colony's first multi-storey parking garage on Crown land at the junction of Cross-street and Cecil-street. The future of the scheme depends on whether the government will let the AA have the land at a 'reasonable rental.'

SOUTH AFRICA.—The South African Railways and Harbour's foreshore development scheme in Cape Town is well under way. Estimated to cost more than £11m. the scheme includes the £3,250,000 Culemborg goods station with its administrative offices and marshalling yards. The new Cape Town station, estimated to cost £5,250,000, will be provided with two postal tunnels. Other important buildings in the course of construction on the reclaimed foreshore include the Medical Centre, to cost about £550,000 and to house the offices of 80 doctors; the United Building Society block estimated to cost £652,000, and Broadway Building (£845,000). Plans have been drawn up for the £1m. Sanlam building of 23 storeys.

SUDAN.—The Development and Rehabilitation Committee presided over by the Minister of Finance and Economics approved the following funds for development and construction schemes: £100,000 as a first instalment for the erection of three hospitals at Raja, El Kurmuk and Messaria Area: £443,000 for the Ministry of Education to build a secondary school at Port Sudan, complete El Fasher secondary schools at Dongola and Zalingi districts and three girls' intermediate schools at Merowe, Rufa's and Hai El Mulazmin at Omdurman. A loan of £625,000 to the Khartoum Municipal Council for the water carriage system. The Committee has confirmed its previous decisions regarding the extension of the new Managil railway line. This will be completed in three phases: firstly, from Khartoum to Fakhakheir; secondly from Fakhakheir to the end of the proposed irrigated area; thirdly from the proposed irrigated area to Rabek near Kosti. £186,000 has been set aside for the erection of new stores for the Mechanical Transport Department and Stores Department and £11,000 for the Tozi Agricultural Research Station.



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AGENCIES WANTED

***Rhodesia and Nyasaland.**—Mr. Burnford, of Salisbury Plywood & Timber Co. (Pvt.), Ltd., PO Box 1142, Salisbury, Southern Rhodesia, has told the Trade UK Commissioner at Salisbury that his firm are interested in securing agencies for building materials from the UK. The firm are interested in almost any materials used by builders or contractors and joiners' shops; they do not, however, want agencies for sanitary ware, plumbing materials or wood-wool slabs. Mr. Burnford will be in the UK for three months from May 13, his address being c/o Vernieux, Odsey, Grange, Ashwell, Baldock, Hertfordshire. Ref. ESB/6356/55 (Tel.: Chancery 4411, ext. 776 or 866).

* From the Board of Trade Special Register Information Service. The telephone number and extension at the end of the paragraphs relate to the department of the Export Service Branch, Lacon House, Theobalds-road, WC1, where further information can be obtained.

AUSTRALIAN HOUSING AND ROADS

15-Year National Plan

THE shortage of housing is becoming one of the sharpest social and political questions of the day in Australia. Housing Ministers from all States gathered in Melbourne recently to discuss the problem, but the Federal Government was not represented. Surveys made by both major political parties, Liberal and Labour, have emphasised the urgency of the problem in the past few weeks. Labour forces say that while the shortage of housing is increasing, workers in building trades and allied industries, such as sawmilling, are facing a slump.

The report of the Liberal Party committee which examined the housing problem said the lag in building was not caused by lack of materials or tradesmen, but by lack of available finance. This, the report said, was due to the Government loan restrictions, which were undertaken as an anti-inflationary measure.

The National Transport Advisory Council, which opened its 14th session in Sydney recently, considered a 15-year national road plan to cost £A370m. The presence at the meeting of the Minister for the Army, Mr. Cramer, was thought to indicate that the defence aspects of the plan were at the forefront of discussion. The Federal Minister for Shipping and Transport, Senator Paltridge, who opened the first session, said that inter-State hauliers were not contributing enough for the roads they were using.

Constitutionally, the responsibility for roads was a State matter, but the position had now been reached where national road construction and maintenance projects had both a State and a Federal interest. Also present at the meeting was the Minister for National Development, Senator Spooner, and Transport Ministers from all States.

The Yukon's White Gold

A plan to help make the Commonwealth independent of foreign sources of metal supply, particularly aluminium, was outlined in a paper by Mr. J. M. Wardle, CBE, BSc, MEIC, consulting engineer for Ventures-Frobisher-Quebec Metallurgical Industries Ltd., Ottawa, at the Institution of Civil Engineers, Great George-street, SW1, on March 19.

Mr. Wardle proposes to reverse the direction of flow of the upper reaches of Canada's Yukon river and so provide, by one vast hydro-electric scheme, five million horse power of electricity, or the equivalent of about half London's needs at present met by 38 thermal power stations.

Discussing the results of the £1½m. preliminary survey of this all-Canadian project, Mr. Wardle said that the production of aluminium, which requires the equivalent of ten domestic units of electricity for every pound produced, was the motivating force behind the scheme. There were also possibilities for the development of the region's nickel and lead.

Johannesburg Slum Clearance

Johannesburg city council has launched a campaign for the construction of 30,000 houses for Africans in three years.

The SCOTTISH BUILDER

£46,000 Harbour for Sutherland

PLANS have been prepared by Sutherland County Council for a new harbour, costing £46,000, at Loch Bervie in north-west Sutherland. The harbour is intended to replace the present pier at Loch Clash.

Inverness-shire Road Grants

THE GOVERNMENT are to meet most of the expenditure on two major road schemes in Inverness-shire estimated to cost £980,000, it was intimated by Lord Strathclyde, Minister of State, Scottish Office, during a visit to Inverness on March 29. The city's suspension bridge across the Ness is to be replaced by a stone bridge and an 11-mile stretch of the Forth William-Mallaig road, between Glenfinnan and Lochailort, is to be reconstructed.

New County Architect

MR. ARCHIBALD GILCHRIST PATON, ARIBA, took up his appointment as county architect and planning officer of Inverness-shire on March 29. He was formerly an assistant in Dundee City Architect's Department. He went to Inverness in 1946 and was depute county architect.

NEW BUILDINGS

Edinburgh.—Plans approved for 112 houses at Comiston housing scheme, est. cost £227,500. A: A. Steele (A), City-chbrs., Edinburgh 1.

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SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from February 4, 1957. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen 4s. 4½d.; Labourers 3s. 10d.

For apprentices, the rates are:

Year.	*Percentage of Craftsman's rate.*	*For week of 44 hours.* s.	d.
1st	25	48	1½
2nd	33½	64	2
3rd	50	96	3
4th	66½	128	4
5th	75	144	4½

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	10
Operatives on labouring operations (at end of probationary period)	3	4

Edinburgh.—Tenders invited for several works in connection with the erection of 16 houses at The Green, Davidson's Mains. Applications to City Architect, City-chmbrs. Forms to be returned to the Town Clerk by May 24.

Fife.—Tenders invited for work in connection with St. Andrew's RC School, Kirkcaldy. All or separate trades. Contractors complying with regulations governing day release only. Applications to M. Pollock, County Clerk, Cupar, Fife, before April 13.

Glasgow.—Plans in hand for factory buildings at Maclellan-st., Kinning Park, for the Co-operative Wholesale Society, Ltd. A: K. Masson (A), 76, Morrison-st., C5.

Glasgow.—Plans to be prepared by own engineers for workshops, offices and other buildings at Tortglen-st., for the Castings Reclamation Co., Ltd., 147, Stevenson-st., Bridgeton, EC2.

Glasgow.—Plans in hand for 12 three-apt. houses at Yelkolm-st., 8 three-apt. and 16 four-apt. at Lauderdale-gdns. West, 8, three-apt. and 16 four-apt. at Auchtochan-terr. A: A. G. Jury (F), 20, Trongate.

Glasgow.—Plans approved for warehouse buildings at 25-31, Crimea-st., Blythswood, for British Steam Specialists, Ltd.

Glasgow.—Corporation has appointed the undernoted architects for specified schools: Site No. 17, Drumchapel, Dunbartonshire, John Keppie & Henderson & J. L. Gleave (PP/A), 21, Woodside-pl., C3; Pollock (Crookston House), Gillespie, Kidd & Coia (F/A), 20, Park-cir., C3; Barlanark, site 5, Boswell, Mitchell & Johnstone (F/F), 256, West George-st., C2; Castlemilk, site No. 11, Honeyman, Jack & Robertson (F/F), 195, Bath-st., C2; and for school pavilion at Colston, Harvey & Scott (A), 2, Lynedoch-pl., C3. All of Glasgow.

Lanarkshire.—Plans in hands of own engineers for station buildings at Garrowhill, Baillieston, for British Railways.

Lanarkshire.—Plans in hand for office, etc., at Halfway, Cambuslang, for D. Storne, Ltd., 7, Burnside-terr., Cambuslang.

Lanarkshire.—Plans approved for 226 houses and 64 garages at site No. 3, Calderwood Development (1), East Kilbride. A: F. Scott (L), 11, Stuarton-park, East Kilbride.

Lanarkshire.—Plans prepared by own engineers for pattern department and other buildings at Craigneuk Ironworks, Motherwell, for Clyde Alloy Steel Co., Ltd., Motherwell.

Lanarkshire.—Council has appointed the undernoted architects and quantity surveyors for specified schools: Calderwood Primary, L. Patterson (F), 6, Cadzow-st., Hamilton; Headhouse Catholic, Alison & Hutchinson (F), 22, Carlyle-rd., Kirkcaldy; Muirhead, Muir & Webster, F/FRICS, 134, West Regent-st., Glasgow.

Ross-shire.—Tenders invited for work in connection with construction of hydro-electric power station for North of Scotland Hydro-Electric Board, with associated works, near Muir of Ord, as part of the Orrin project. Tender documents from Sir Alexander Gibb & Partners, 43, Northumberland-st., Edinburgh, or Queen Anne's Lodge, Westminster, SW1. Dep. £5 5s. (returnable).

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

APRIL 17.

***†Isle of Ely CC.**—(1) First instalment of Wilburton VP (Controlled) Sch.; (2) Alterations and construction of new dormitory at The Manor School, Wilburton. County A. Dep. £2 2s. each job.

APRIL 20.

***†Essex CC.**—Schoolkeepers' houses at Ockendon Bonnygate and Ockendon Kenningtons county prim. schools. County A.

***†Selby UDC.**—24 bungalows. G. L. Thompson, FRIBA, 22, Park-st., Selby. Dep. £2 2s.

APRIL 22.

***Swindon BC.**—Estate common room and branch library at Walcot. Boro' A.

APRIL 24.

***Finchley BC.**—Cricket pavilion adjoining Arden Playing Fields. BE&S, 294/6, Regent's Park-rd., N3. Dep. £2.

***†Kingston-upon-Thames BC.** — 12 single-bedroom flats. TC.

APRIL 25.

***†Essex CC.**—Applications invited from contractors to be put on selected lists for erection of police houses. County A.

APRIL 26.

Maidenhead BC.—30 houses at Spencers estate, with drainage and site works. Boro' E&S. Dep. £2 2s.

***†Paddington MBC.**—Block of flats (12 dwellings) at 10-18, Aldridge-rd. Villas. TC.

†Portchester Crematorium Joint Com.—Crematorium at Cornaway-la., Portchester, Hants. E&S to Jt. Com., Town Hall, Gosport. Dep. £2 2s.

Wantage UDC.—12 permanent houses and site works. W. G. Stanbrook, AIAA, Ccl's A. 37a, Bartholomew-st., Newbury. Dep. £3 3s.

***†West Bromwich CB.**—209 houses, Witton-la. H. Schofield, BS.

APRIL 27.

***†Leyton BC.**—24 flats at Janson-rd. BE&S. Dep. £2 2s. Tenders by May 21.

APRIL 29.

***Harlow UDC.**—Block of six old-people's bungalows and ancillary works at Sheering-rd. E&S, Netteswell Hall. Dep. £2 2s.

***†Sutton and Cheam BC.**—Erection of 12 houses at three sites at Cheam. BE&S. Dep. £3 3s. Tenders by May 28.

***†West Riding CC.**—One pair of houses with drainage and site works at Yorkshire (WR) Institute of Agriculture, Askham Bryan. Deputy County A. Bishopgarth, Westfield-rd., Wakefield. £2 2s.

APRIL 30.

***Breconshire CC.**—(1) Alterations and new scullery Cwmtwrch CP sch.; (2) sewage disposal scheme and provision of bathroom in school residence, Llanganten CP sch.; (3) staff room and teachers toilet and extension to boiler house, Talgarth CP sch.; (4) improvements, heating alterations and scullery, Gurnos CP sch.; (5) sewage disposal scheme, Cwmdu Voluntary prim. sch. County A.

***†West Sussex CC.**—Extensions to sch. at Hamfield, Shoreham-by-Sea. (Job No. 4617.) County A.

MAY 3.

***Bromley BC.**—Groundsman's bungalow at Bromley Golf Club Pavilion. BE. Dep. £2 2s.

***Bromley BC.**—Lavatory accommodation and war damage repairs to Golf Club Pavilion and dressing-rooms. BE. Dep. £2 2s.

***Walthamstow BC.**—Conversion of 113, Church-hill, into flats. Boro' AE&S. Dep. £2 2s.

MAY 20.

Hove BC.—40 flats at Hangleton-rd. Boro' E&S. Dep. £3 3s.

***Newmarket UDC.**—22 houses at Windsor-rd. and Manderston-rd. P. D. Lees, Council architect, Severals-hse. Dep. £2 2s.

***Ware UDC.**—Public conveniences at Priory-st., Ware. E&S. Dep. £3 3s.

PAINTING, MATERIALS, ETC.

APRIL 18.

***†Dudley CB.**—Installation of hot water system in approx. 700 houses. TC.

APRIL 24.

***Dunstable BC.**—External painting, 80 houses and flats, Brewers Hill estate. Housing Estates Manager. Dep. £1 1s.

***†Durham CC.**—Heating and DHW installations at Durham new tech. coll. stage 2; Felling Heworth new mod. sch.; Jarrow grammar sch., additions. County A.

Rotherham RDC.—Repainting of external woodwork and ironwork of 448 houses. Maintenance Works Manager, Council Offices. Dep. £1 1s.

APRIL 29.

***Reigate BC.**—37 houses, Park House site, Park Lane East. BE&S. Dep. £2 2s.

***Shrewsbury BC.**—External painting in six contracts of 290 houses at Meadows estate, 120 houses at Wingfield-cl. estate, 86 houses at Heath Gates estate. The Quarry Lodge, Nos. 1-6, Claremont-bldgs., and the Public Baths. BS.

***Twickenham BC.**—External painting of 108 flats, maisonettes and shops at Butts Farm estate. BE&S. Dep. £2 2s.

MAY 13.

Rochester City C.—228 flats at Riverside estate. City S, 66, Maidstone-rd. Dep. £5 5s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

APRIL 22.

***†Watford RDC.**—Extension of about 75 yds. of roadway at Anthony-cl., Oxhey. C., Dep. £1 1s.

APRIL 23.

St. Albans CC.—Half a mile of 24-ft. carriageway in hardcore and tarmacadam, kerbing, footways and verges, and 1,500 yd. of 6-in. to 12-in. dia. SW sewers, with 16,000 cu. yd. excavation to form embankments on Hemel Hempstead road, A414. City E&S. Dep. £2 2s.

APRIL 24.

Castleford BC.—Site works, Section E, Ferry Fryston housing estate—2,520 yd. of sewer in trench, 16,700 sq. yd. soil-cement carriageway foundation, 15,300 sq. yd. tar and bitumen macadam carriageway, kerbing, channelling, etc. Boro' E&S. Dep. £2 2s.

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East Barnet UDC.—8,550 super yd. of 9-in. thick hardcore carriageways with 2-in. asphalt surface, with kerbing, channelling, construction of artificial stone paved footways, etc. E&S. Dep. £5 5s.

Hyde BC.—460 yd. of 45-in. dia. concrete and CI pipes, mainly in heading, with manholes, a canal crossing, etc. Ward, Ashcroft & Parkman, Ccl's constg. engrs., 28, The Temple, Dale-st., Liverpool, 2. Dep. £5 5s.

APRIL 26.

Ipswich CBC.—5,200 sq. yd. of concrete roads, 535 lin. yd. of SW sewers, 400 lin. yd. of foul water sewers, etc. Boro' E. Dep. £2 2s.

Rochford RDC.—1,700 lin. yd. of 7-in. and 9-in. dia. sewer, pumping station and ancillary works at Barling Magna and Great Wakering sewage disposal works. E&S. Dep. £1 1s.

APRIL 30.

East Dean RDC.—Three miles of 3-in., 4-in. and 5-in. spun-iron main and incidental works between Mitcheldean and Longhope, Glos. Lemon & Blizard, Ccl's constg. engrs., Castle-la., Southampton. Dep. £2 2s.

***Prescot UDC.**—Sewers and road works, Bretherton-rd. site, E&S. Dep. £2 2s.

MAY 11.

Chesterfield, Bolsover and Clowne Water Board.—Reconditioning of the three Linacre reservoirs, with raising of embankments, new waste weirs and watercourses and one new footbridge. G. H. Hill & Sons (Manchester), Civil Engrs., 51, Mosley-st., Manchester. Dep. £5 5s.

MAY 13.

Ross-on-Wye UDC.—3,400 lin. yd. of concrete, iron and GSS sewers and pumping mains from 39 in. to 6 in. dia. with 31 manholes, storm water pumping station, sewage pumping station and extension to existing sewage disposal works. W. Herbert Bateman & Ptnrs., Chesterfield-hse., Batheaston, Bath. Dep. £5 5s.

JUNE 11.

Lancashire CC.—Bridge, with approach viaducts, carrying Stretford-Eccles road, A575, across Manchester Ship Canal, ¼ mile downstream of Barton Swing Bridge. Length of bridge and viaducts 2,425 ft. County S. Dep. £30.

GENERAL BUILDING WORK

(LONDON)

Bethnal Green.—SCHOOL IMPROVEMENTS.—The LCC has approved proposals for adaptations and improvements at Wilmot county sec. sch., estimated to cost £15,842.

Brentwood.—BLOOD TRANSFUSION CENTRE.—The North-East Metropolitan Hospital Board has approved an amended sketch plan of a scheme for the extension of the Blood Transfusion Centre at Brentwood, estimated to cost £16,000. The Regional Architect is W. G. Plant (A), 3, Queen Anne-st., W1.

Lewisham.—SITE ACQUISITION.—The LCC Housing Com. proposes the acquisition for housing purposes of a site of about nine acres at Mayow-rd., Sydenham, close to the Dacres-rd. site.

London, City.—MULTI-STOREY CAR PARK.—C. Edmund Wilford & Son (F/A), 2, Green-st., Mayfair, W1, are the architects for a multi-storey car park to be erected on a site bounded by Upper Thames-st., Queen-st.-place, the river and the proposed Public Cleansing Depot. The scheme includes a petrol filling station, service and repair workshops, offices, shop and showrooms fronting Upper Thames-st., a restaurant fronting Queen-st.-place and four residential flats fronting on the river. (This supersedes information given on p. 604 of our issue of March 29.)

Poplar. — HOSPITAL IMPROVEMENTS. — The North-East Metropolitan Hospital Board has approved a scheme of adaptations to provide improved accommodation for the physiotherapy department at St. Andrew's Hospital, Bromley-by-Bow, E3. The building and engineering work is estimated to cost £17,500. The Regional Architect is W. G. Plant (A), 3, Queen Anne-st., W1.

Southwark.—SITE ACQUISITION.—The Housing Com. of the LCC is to acquire a site of about half-an-acre in and adjoining the Long-lane clearance areas, on which it is estimated that 18 dwellings can be erected.

Southwark. — SITE ACQUISITION. — The LCC Housing Com. is to acquire an area at Mardyke-st., SE17, having a gross area of about 1½ acres,

which it is proposed to redevelop for housing purposes in conjunction with adjoining land.

Stepney.—HOME & FLATS FOR AGED PEOPLE.—The LCC Housing Com. is to acquire a site covering three-fifths of an acre at Blakesley-st., E1, which, with surrounding land belonging to the Council, and in conjunction with the Welfare Com. it is proposed to use for the erection of a home for the aged with adjoining flatlets for old people who are able to look after themselves with help from the home.

Uxbridge.—GRAMMAR SCHOOL.—The Middlesex Education Com. has approved plans for a new secondary grammar school for 720 boys and girls on a 14-acre site lying between Warren-rd. and Western-ave., Ickenham. The school buildings will consist of a three-storey block grouped round the hall and small hall/dining room, connected with a two-storey block containing the practical subjects rooms and gymnasium. The design of the school is almost identical with that of Heston and Isleworth new Spring-grove grammar school, and the County Architect has been authorised to negotiate a tender for the Ickenham school based upon the prices in the bills of quantities for the Spring-grove school. The estimated cost is £252,880.

Wandsworth.—SITE ACQUISITION.—The LCC Housing Com. is to acquire a site nearly three acres in extent at The Chase, Clapham, SW4, on which it is estimated that 55 dwellings can be erected. The estimated cost of acquiring, clearing and partly redeveloping the land is £64,500.

Westminster.—SHOPS, OFFICES AND PUBLIC HOUSE.—Planning permission has been granted for the redevelopment of a site comprising 32-50a Strand, 18-32 John Adam-st., 2-4 and 24-29 Buckingham-st., 1-13 York-place and 1-7 Villiers-st., WC2, by shops on two floors, with eight floors of offices above and a basement car park. The architects are Trehearne and Norman, Preston and Ptnrs. (F/F), 83 Kingsway, WC2; R. Travers Morgan and Ptnrs., 11 Victoria-st., SW, are the consulting engineers and the quantity surveyors are Cyril Sweett and Ptnrs., 48 Bedford-row, WC1.

Woolwich.—SITE ACQUISITION.—The LCC Housing Com. proposes to acquire a gross area of about 3¼ acres, known as the Woodrow areas and site, on which it is estimated that 69 dwellings can be erected.

Woolwich.—HOME FOR AGED PEOPLE.—The LCC Welfare Com. is to acquire a site half an acre in extent at Greenlaw-st., SE18, for the erection of a home for about 50 old people.

(PROVINCIAL)

Alfreton.—UDC received Ministry approval to sell sites for new factories on proposed industrial estate.

Belford.—RDC to build houses on ¾ acre of land at Lucker. A: Kenneth Glover (F), Beadnell, Chathill.

Birkenhead.—BC approved in principle erection of 11-storey buildings at Woodchurch estate.

Birmingham.—TC approved plans: extensions to factory at Wharfedale-rd., for W. H. Briscoe & Co., Ltd. A: L. J. Multon (F), Birmingham.—Senate of University to invite tenders later this year for extensions to medical school. A: Lanchester & Lodge (F/F), 10, Woburn-sq., WC1.—TC proposes leasing sites at Bullock-st. to Aluminium Goods, Ltd., site at Barr-st. and Smith-st. to Deutsch & Brenner, Ltd., and site at Cope-st. and Steward-st. to Coloral Products, Ltd., for new buildings.

Blaydon.—Hope & Anchor Breweries, Ltd., plan erection of public-house at Winlaton.

Bolton.—TC approved plans: shopping block at Newport-st. for R. Fairhurst & Son, 70, Adrian-rd., Bolton; alterations to form office block at 63, Bridge-st. for North Western Electricity Board; new showroom, store and offices at Moor-la. for Harry Mason & Sons, Ltd.; workshop and office block off Smethurst-la. for H. Compsty & Sons, Ltd.; new mineral water factory at Raikes Lane industrial estate for Thomas & Evans, Ltd., Porth Rhondda, Glamorgan.

Brighouse.—BC approved plans of new stores building at Brookfoot Mills for Kossett Carpets, Ltd.

Brighton.—TC proposes new 11-storey block of flats near main Lewes road at Coldean. Boro' S. E and Planning Officer: D. J. Howe, MICE, MIMunE.

Burnley.—BC proposes new covered accommodation at Market, £40,000 est., additional classrooms and storage accommodation at Bardin county sec. sch.—To sell site at Stonyhurst-ave., Far Brunshaw estate, to RC authorities as site for new chapel.

Burton upon Trent.—HC approved in principle building of 240 dwellings.

Cheadle Hulme.—Wilsons Brewery Co., Ltd., propose erection of new hotel to be known as 'The Conway,' at Turves-rd.

Cheltenham.—Following projects have been agreed by EC for submission for 1957-58 programme:—Prim. sch., Hatherley; prim. sch., Arle and Hesters Way estate; one form entry instalment of RC sec. sch.; tech. sch. for boys; prim. sch., Benhall Farm estate; day sch. for ESN senior children.

Chesterfield.—National Coal Board proposes expenditure of £175,000 on modernisation of 300 houses at Holmewood.

Chesterfield.—RDC proposes erection of 462 houses in 1957 programme, as follows:—24 at Ashover, 64 at Beighton, 16 at Walton, 60 at Brimington, 30 at Calow, 64 at Eckington, 20 at Tupton, 50 at Heath, 10 at North Wingfield, 64 at Killamarsh, 10 at Morton, 40 at Shirland and Higham and 6 at Brackenfield.

Clitheroe.—Inquiry held into application by Shell Mex & B.P., Ltd., for permission to erect petrol filling station adjoining Whalley Cemetery, £12,000 est.

Consett.—Alterations to be made to old infirmary to convert it to YMCA headquarters, £10,000 est. J. L. Stevens, Secretary.

Coventry.—City A, A. G. Ling (F), MTPI, to report further on suggestion that proposed multi-storey block at Bell Green District Centre should have 16 or 17 storeys.

Coventry.—HC to acquire sites of 13 bombed houses at Villiers-st. for housing purposes and City A to submit proposals for one-bedroom flats, bed/sitting-room flatlets and one five-bedroom house. Watch Com. to build three police houses on part of site.

Darlington.—Boro' EC to proceed with erection by contract of three-storey laboratory, etc., block at Queen Elizabeth gram. sch. Boro' A: E. A. Tornbohm.

Darlington.—United Automobile Services, Ltd., submitted outline plans to TC for proposed 'bus station and offices, parking and inspection bay. A: A. A. Briggs (F), 10, Fleet-st., EC4.

Darlington.—Bussey & Armstrong, Ltd., builders, Brinkburn-rd., Darlington, to erect houses at Edinburgh-dr. and Carrol-rd.

Easington.—RDC approved plans for alterations and additions to isolation block at Thorpe Hospital, for Newcastle Hospital Board, Benfield-rd., Newcastle-on-Tyne. Bd's Chief A: P. H. Knighton, MBE (A).

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Eccles.—TC to prepare quantities and invite tenders for 42 houses off Portland-rd.

Gateshead.—G. H. Gray & Ptnrs. (F/A), Camden-st., North Shields, will prepare plans for new sch. for Boro' EC. Colvin Smith, Ltd., South Shore, have had plans by their staff approved for extensions to their engineering works.

Hereford.—CC proposes new hostel block at Hereford Training College. County A: W. Usher (A), Shire Hall.

Houghton-le-Spring.—UDC to add to its housing programme scheme for 22 one-bedroomed houses, to plans by S: A. Veitch. Solidus Foundries (Herrington), Ltd., to build a workshop at rear of Raglan Row, Philadelphia.

Hucknall, Derbyshire.—PC Ccl. proposes extensive renovation works to church.

Huddersfield.—TC approved erection of 120 houses at Fernside estate, £157,056 est., and construction of swimming bath at Salendine Nook schools, £23,981 est.

Ince-in-Makerfield.—UDC to reclaim land at Whalleys Basin on which to erect 84 dwellings.

Jarrow.—Boro' E, H. W. T. Perkins, prepared plans for 10 bungalows at Stanhope-rd. East, for two houses in flats and four two-bedroomed houses.

Kettering.—P. Phipps & Co., Ltd., Northampton, propose erection of new licensed premises at Stamford-rd. Plans by own A department, £25,000 est.

Leicester.—New Union building, £333,500 est. and chemistry building to cost £340,000 are proposed by University authorities.

Lincoln.—New centre for Government departments dealing with social services is to be erected at Deansgate.

Macclesfield.—Cheshire CC proposes new College of Further Education.

Macclesfield.—Cheshire CC approved erection of new engineering works at London-rd., Butley, Prestbury, for J. C. Broadhead.

Manchester.—Chesters Brewery Co., Ltd., proposes new hotel to be known as 'The Portway' at Portway and Ruddpark-rd., Woodhouse Park, Wythenshawe. A: Brameld & Smith (L), Corn Exchange-bldgs., Manchester.—Mortgage Investments, Ltd., propose conversion of shops and business premises into offices at 1 and 3, Clarence-st. and 10, Kennedy-st.—University of Manchester proposes alterations and extensions to Christie Library. Plans by own building department.—Dobsons Dairies, Ltd., Lloyd-rd., Levenshulme, propose extensions to transport department. Plans by Frederick Hill, 14, Manchester-rd., Bury.

Nelson.—TC proposes erection of 7 aged persons' bungalows at Pinfold-pl.

Newark.—New tax office proposed, £26,000 est., for Inland Revenue Dept.

Newbiggin.—UDC has submitted to MH&LG £60,000 scheme for construction of sea wall to prevent coast erosion. Consultg. engrs.: R. T. James & Ptnrs., Clavering-pl., Newcastle-on-Tyne.

Newcastle-on-Tyne.—Plans being prepared for new County Ccl. prim. sch. at Kenton. A: Newcombe & Newcombe (A), Eldon-sq., Newcastle.

Newcastle-on-Tyne.—Funds are being raised for erection of social centre on vacant site at corner of New Bridge-st. and Crawhall-rd. to provide hall for 700 people, a boys' club, girls' club, men's club, reading room, etc. Promotor: The Very Rev. Bede Bailey, St. Dominic's Priory. A: A. E. Gunning (A), Eldon-sq., Newcastle-on-Tyne.

Newcastle-on-Tyne.—Plans for NCB offices at Sun Hotel-bldgs., Pink-la., have been approved. Ward & Austin (A/A), 20, Orange-st., WC2.

Newcastle-on-Tyne.—City C recommended to build 233 houses on site at Denton Dene. City A: G. Kenyon (A), AMTPI, 18, Cloth Market, Newcastle.

Newcastle-on-Tyne.—City C will shortly obtain tenders for foundation work for first instalment, £650,000 est., of scheme for erection of new Town Hall. Plans by City A. Constg. engrs. for heating, ventilating and electrical work: R. W. Gregory & Ptnrs., Pilgrim-hse., Newcastle; structural engineering consultants: R. T. James & Ptnrs., Clavering-pl., Newcastle; QS: T. Barrett, Sons & Ptnrs., Brunswick-pl., Newcastle.

Newcastle-on-Tyne.—Council of King's College to provide housing accommodation for

about 2,000 more students during next few years. Plans include new halls of residence at Moor Edge Hall, Cochrane Park, and Leazes-ter. Work expected to start later this year on new physics building, to be completed in 1960. Basil Spence, ARA, & Ptnrs., 48, Queen Anne-st., W1, is A for proposed physics building, but it is understood that no architects have yet been appointed for other projects.

Northumberland.—The following are included in EC's minor building programme for 1957-58:—Phase II of proposed Byrness county prim. sch., £10,000; three classrooms at Gosforth county gram. sch., £10,000; and four classrooms at Longbenton Unit No. 4 county prim sch., £10,000. County A: C. C. Brown (A), County Hall, Newcastle-on-Tyne.

Nottingham.—TC received Ministry approval for erection of new girls' sec. sch. at Daybrook Vale, Sherwood, £161,000 est.—Approved plans for new jun. sch. at New Bestwood estate, £60,000 est.

Oldham.—TC seeks loan £52,300 for erection of Alt prim. sch. and £162,300 for Breeze Hill sec. sch.

Prudhoe (Northumberland).—National Coal Board (Open-cast Executive) to erect offices at Prudhoe.

Ramsbottom.—UDC approved plans for conversion of 'Station Hotel' into printing works and office for Scholes & Co.

St. Helens.—British Railways propose reconstruction and modernisation of Shaw-st. railway station, £60,000 est.

Salford.—EC approved sketch plans for proposed Cromwell sec. mod. sch. A: Cruickshank & Seward (F), 196, Deansgate, Manchester.

Sedgefield.—RDC received TP approval of layout plans of houses on seven-acre site. S: J. Tarran.

Sheffield.—TC to lease site at Kilvington-ave. and Mosborough-rd., Woodthorpe estate, to John Richdales Brewery Co., Ltd., for erection of new licensed premises.

Skelmersdale.—Lancs CC proposes new library nr. county sen. sch.

Solihull.—Governors of Solihull school approved extensions and improvements to scientific and workshop section. A: C. N. White (A), 190, Broad-st., Birmingham.

South Shields.—M of E approved sketch plans for proposed Inter-Parochial RC sec. sch. A: T. A. Page, Son & Hill (F/F), 75, King-st., South Shields.—T. A. Page, Son & Hill appointed architects, and J. S. Glover, 13, Winchester-st., South Shields, QS, for proposed infants' schools in Whiteleas and Highfield areas for EC.—Plans by J. Smeds, Camden-st., North Shields, for junior mixed school at Whiteleas approved.—Ridley (South Shields), Ltd., 3, St. Mary's-ave., South Shields, to erect 14 bungalows at Harton-la.—Boro' E (John Reid) to prepare plans for redevelopment of land in Tyne Dock Nos. 1 and 2 clearance areas.—British Railways prepared plans for building of wagon repair depot on railway sidings site at Simonside, £160,000 est.

Stalybridge.—BC to prepare plans for erection of houses on site fronting Ridges Hill-la.

Stanley, Co. Durham.—NCB to erect laboratories at Louisa Colliery, Stanley, to plans by Area A, Springfield-hse., Shotley Bridge, Co. Durham.—UDC S, J. R. Heslop, preparing plans for housing developments nr. Margaret-terr., Tanfield Lea, and nr. Wesley-terr., Arnfield Plain.

Stockport.—Managers of St. George's prim. sch. propose erection of two additional classrooms.—EC received Ministry approval for erection of infants' dept. at Maycroft prim. sch., Brinnington, in 1957/8 programme.

Stoke-on-Trent.—TC to prepare plans for new Lido at Grove-rd., Smithpool, Fenton.

Stourbridge.—TC to prepare plans for 109 dwellings on Part 3 of Rufford estate.

Sunderland.—Newcastle Breweries, Ltd., Haymarket, Newcastle, propose new licensed premises at High Barnes.

Sunderland.—W. & T. R. Milburn (A/A), 18, Fawcett-st., Sunderland, are A for houses at High Barnes estate and nr. Holborn-rd. and Nookside for I. Smith, builder, The Broadway, Sunderland. Boro' A: H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland, prepared plans for 55 houses at Forest-rd. for TC.

Sunderland.—James A. Jobling & Co., Ltd., Wear Glassworks, Sunderland, have obtained site for block of administrative buildings, and work is expected to start later this year.

Sunderland.—W. Younger & Sons, Ltd., Newcastle, propose new licensed premises at junction of Hylton-rd. and Holborn-rd.

Sunderland.—C. Solomon (F), St. Mary's-pl., Newcastle-on-Tyne, is A for old people's home at Grays-rd. for Joel Intract Home for Aged Jews.

Sunderland.—Health Com. is considering building new health occupation centre to replace existing premises at Murton-st., in clearance area, £23,000 est. Boro' A: H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland.

Tottington.—RC Authorities propose erection of new church at Rhodes-st. Work to commence within next 12 months.

Tynemouth.—A. and E. Brannen, builders, Trevor-terr., North Shields, to erect 14 houses at Keswick-dr.—S. Storer, builders, Langley-rd., North Shields, to erect houses on site at Verne-rd., North Shields, originally intended for shops, and on the Coast Road, North Shields.—M. J. Liddell & Sons, builders, Great North-rd., Newcastle, to build houses on 1½ acres of land west of Broadway, Tynemouth.

Upholland.—UDC approved plans for new men's club at Mill-la. for Upholland Working Men's Club.

Wallsend.—F. W. Woolworth & Co., Ltd., Liverpool, discussing plans with local planning authority for proposed new stores at junction of High-st. and Station-rd.

West Hartlepool.—TC has agreed to sell nearly 200 acres of land at Greatham Airport to South Durham Steel and Iron Co., Ltd., for construction of new works to cost about £43 million. Plans include battery of 78 coke-ovens with by-product plant, extension to ore-handling and stocking plant; erection of new furnace and provision for second furnace at later date; new melting shop with six furnaces and two mixers; ingot pre-heater furnace; new slabbing mill; and plate mill.

West Hartlepool.—EC proposes including following in its 1958-59 building programme: Junior dept. at Owton Manor county prim. sch.; new St. Teresa's prim. sch.; girls' dept. at sec. tech. sch.; new Grange county prim. sch.; new Catcote RC sec. boys' sch.; and extensions to Dyke-hse. sec. sch. Boro' A: A. G. Sinclair, Municipal-bldgs., West Hartlepool.

West Lancs.—Lancs. CC proposes erection of new sec. sch. at Hesketh-la., Tarleton. Work to commence in 1958.

Whitley Bay.—Plans approved for:—Further bungalows at Millfield estate, and houses at Deneholm for R. A. Gofton, Ltd., builders, Front-st., Monkseaton; roads and sewers and 11 bungalows at Frankland Mount estate for D. Brannen, builder, Seatonville-rd., Whitley Bay.—Northumberland CC to erect six police houses at Earsdon Grange estate to plans by County A.

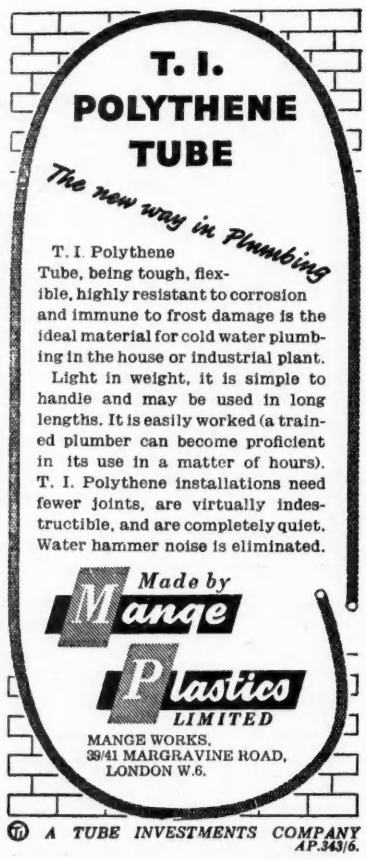
Wigan.—TC approved layout for further 72 houses at Marsh Green site.

Wigan.—RDC approved plans for medical centre at Alexandra Colliery and Bridge Colliery, Haigh, for National Coal Board.

Wigan.—TC approved plans for aged persons' hostel at Springfield.

Worcestershire.—Major school building programme for 1958-59, costing £458,500 has been submitted by EC as follows:—Oldbury sec. tech. sch., £115,000; Redditch RC sec. mod., £93,500; Redditch Headless Cross jun. extension, £22,000; Areley Kings prim., £50,000; sec. sch. for Martley district, £98,000; Great Malvern prim., £50,000; Oldbury Brandhall infants (completion), £30,000 and improved accommodation at King Charles grammar sch., Kidderminster, and Prince Henry's grammar sch., Evesham.

Worksop.—TC proposes demolition of 72 houses at Newgate-st., Abbey-st., Marecroft and Vine-terr. and erection of multi-storey block of 62 flats. Inquiry held.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TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Aldridge.—Stage 1 of new factory, for Birlec Ltd. *R. M. Douglas, Ltd., 395, George-rd., Birmingham.

Barrow-in-Furness.—First instalment West Shore county sec. sch., Walney Island, for CBC Boro' E&S: J. N. Flitcroft, AMICE, MIMunE, QS: Poole & Dick, Manchester. John Lecl & Son (Barrow), Ltd., Barrow-in-Furness, £103,478. *Direct labour, £99,203.

Blackburn.—New science wing at Queen Elizabeth grammar sch., for Governors. *William Livesey & Sons, Ltd., Nova Scotia Sawmills, Blackburn.

Brentford.—First instalment of extensions at sec. mod. schools for Middlesex CC. ‡W. H. Gaze & Sons, Ltd., £60,554.

Bristol.—New warehouse (22,500 sq. ft.) as extension to factory at Yatton for Caperns, Ltd. A: Alec F. French & Ptnrs., Halifax-hse., St. Augustine's-parade, Bristol, 1. *Wilkins & Coventry, Ltd., Bristol. £35,000.

Castle Ward.—New C of E sch., Ponteland. A: Newcombe & Newcombe (F), 23, Eldon-sq., Newcastle-on-Tyne. QS: R. S. Malloch, 6, Eldon-sq., Newcastle. *John Jackson & Sons, Corporation-st., Newcastle-on-Tyne, £133,000.

Chadderton.—New grammar tech. sch., for Lancs EC. ‡E. Taylor & Co., Ltd., Ebor Saw-mills, Littleborough.

Chester.—First instalment of Hoole sec. mod. sch., for EC. *Thomas Warrington & Sons, Ltd., 84, Station-rd., Ellesmere Port. £109,875.

Chesterfield.—Annexe at Chesterfield College of Technology, for Derbyshire CC. *Ford & Weston, Ltd., Osmaston-rd., Derby.

Coventry.—Following, for EC: Second instalment of Caludon Castle sec. sch. *Thomas Bates & Son, Ltd., 53, Warwick-st., Coventry, £68,179.—Hanley-rd. prim. sch. *K. B. Benfield & Co., Ltd., 10, Old Church-rd., Bell Green, £49,130.

Coventry.—24 two- and four three-bedroom maisonettes in two four-storey blocks of 'Unity' construction at Charter-ave. hostel site for City C. City A. ‡Direct labour. £49,448.

Coventry.—Second instalment of Caludon Castle sec. (comprehensive) sch., including swimming bath, science block extension and assembly hall/gymnasium, for EC. *Thomas Bates & Son, Ltd., £68,179 (subject to Ministry approval).

Coventry.—644 dwellings and 333 garages of 'no fines' construction at Willenhall Wood for City C. as follows:—

No.	Type.	Superficial area (sq. ft.).	Approx. cost per sq. ft.	Approx. cost (each).	Total cost.
					£
120	3-bedroom houses (4 persons)	797	37.1	1,478	177,334
154	3-bedroom houses (5 persons)	923	34.6	1,591	244,943
10	4-bedroom houses	1,033	36.3	1,871	18,710
Corner type flats (2-storey)					
104	bed-sittingroom flatlets ...	364	50.11	927	96,386
110	1-bedroom flats...	458	44.4	1,016	111,769
82	2-bedroom flats...	710	35.8	1,266	103,801
2	1-bedroom flats...	458	47.3	1,083	2,165
2	2-bedroom flats...	710	37.7	1,335	2,669
4-storey blocks					
20	1-bedroom flats	540	50.4	1,358	27,161
40	2-bedroom flats	716	42.10	1,534	61,341
333	garages	—	—	99	32,842

City A: A. G. Ling (F), MTPI. ‡George Wimpey & Co., Ltd. £882,006 (including £2,884 for additional site works).

Daventry.—20 houses, for BC. *Adkins & Shaw, Ltd., St. James-st., Northampton, £25,838.

Daventry.—20 two-bedroom houses at Hemans-rd. and Highfield-rd. for TC. *Adkins & Shaw, Ltd., £26,002 (subject to approval of MH&LG).

Durham.—20 houses at Leamside and eight at Framwellgate Moor for RDC. Plans by Housing A, Byland Lodge, Durham. *Direct labour.

Easington.—26 houses for RDC. S: R. R. Lumsden. *Direct labour. £35,352.

East Retford.—Second stage of foundations at High Marnham power station for Central Electricity Authority. Constg. A: Clifford Tee & Gale (F), 5, Buckingham Palace-gdns., SW1. Constg. engrs.: Freeman, Fox & Ptnrs. QS: Leitch & Samuel. *Taylor Woodrow Construction, Ltd., 10, Park-st., W1. £1 million.

Edgware.—Motor showrooms, offices, workshops and ancillary works at 51/53, High-st. for Messrs. W. Harold Perry, Ltd. A: John D. Morgan & David C. Branch (A/A), 6-9, Charterhouse-sq., EC1. QS: Lane & Jewell, AIQS. 10, Eccleston-pl., SW1. *A. E. A. Prowting, Ltd. £100,910.

Felling, Co. Durham.—250 houses at Pelaw for UDC. S: R. Morton. *Direct labour.

Felling, Co. Durham.—Warehouse and offices for John Dickinson & Son, papermakers, Hemel Hempstead. Plans by S. E. Burrage, firm's own architect. *John Laing & Sons, Dalston-rd., Carlisle.

Gateshead.—Two additional storeys at works of Colvin-Smith, Ltd., engineers. *Direct labour.

Glasgow.—20-storey block of 75 four-apartment flats at Pollokshields. A: Sam Bunton & Associates, 7, Somerset-pl., Glasgow, C3. *John Lawrence & Co. (Glasgow), Ltd., Blythswood.

Huddersfield.—First instalment of Lindley technical training college, for EC. *J. B. Brooke & Sons, Ltd., 264, Manchester-rd., Huddersfield.

Ipswich.—64 flats, Wells-st. for CBC, BE&S, Tower-st. QS: Caston & Porritt, Ipswich. *J. Gerrard & Sons, Ltd., 40, Lady-la., Ipswich. £96,235.

Ipswich.—32 bungalows, London-rd., Chantry estate for CBC. BE&S. QS: Caston & Porritt, Ipswich. *Macro (Ipswich), Ltd., 80, Henley-rd., Ipswich. £41,990.

Jarrow.—New RC church at York-ave. A: E. A. Gunning (A), 18, Eldon-sq., Newcastle-on-Tyne. *Gunning & Co., Hannington-st., Newcastle-on-Tyne, 6, £21,000.

Leeds.—8 ten-storey blocks of flats, for TC, on various sites. *William Townson & Sons, Ltd., Higher Swan-la., Bolton. £969,000.

Liverpool.—New RC jun. sch. at Hedgfield-rd. West, for RC Authorities. *W. Hall & Son, Ltd., 60, Christian-st., Liverpool.

¶London (Air Ministry).—New works contracts to value of £500 or over for week ended April 5:—*Artificers' work*: Ringstead, Dorset, Dorchester Buildings Guild, Church-st., Dorchester; Hartlebury, Worcs, J. Herbert Smith (Kidderminster), Ltd., 101, Station Hill, Kidderminster, Worcs; Heston, Middx, W. S. Try, Ltd., High-st., Cowley, Uxbridge, Middx. *Heating and ventilating*: Cosford, Staffs, Maddock & Wright, Ltd., Lillie-hse., London-rd., Leicester; Llanbedr, Merioneths, Alfred Grindrod & Co., Ltd., 122-126, Charles-st., Sheffield, 1.

Extension of runways, etc., Leuchars, Fife, W. & J. R. Watson, 81, Great King-st., Edinburgh, 3.

London (British Railways).—Charles R. Price, Barnsley-rd., Doncaster, reconstruction of goods shed at Market Rasen.—Pitchers, Ltd., 57, Ashburton-gr., Holloway, N7, repairs and alterations to 222, Marylebone-rd.—J. Jeffreys & Co., Ltd., 195-203, Waterloo-rd., SE1, supply, delivery and erection of boiler plant heating system, oil storage equipment and all piping at Stratford diesel lightweight train depot.—E. C. & J. Keay, Ltd., 'Runnymede,' Henley-in-Arden, Birmingham, supply and delivery of structural steelwork in connection with reconstruction of engine shed at Barrow Hill and Staveley motive power depot.—Fletcher & Co. (Contractors), Ltd., Forest-rd., Mansfield, repairs to arches Nos. 81 and 82 of bridge No. 39, Frodingham Viaduct between Althorpe and Scunthorpe.—Couzens & Akers, Ltd., Victoria-bldgs., 32, Deansgate, Manchester, 3, supply, delivery and installation of boiler plant heating system oil storage equipment and all piping at Cambridge diesel lightweight train depot.

London (British Railways).—Contracts placed by Southern Region:—

Yeovil Pen Mill, Mill Stream bridge: constructional steelwork, The Butterley Co., Ltd., Butterley, nr. Derby. Crystal Palace Low Level station: alteration works, R. Mansell, Ltd., Croydon, Surrey. Feltham: new workshop, Aubrey Watson, Ltd., SW1. Coulsdon North station: renovations, P. & M. Contractors, Ltd., SW1. Newhaven harbour: reconstruction of cargo shed, Mears Bros. (Contrs.), Ltd., SE26. Durnsford-rd. repair and inspection depot: new mess room accommodation, Caffin & Co., Ltd., WC2. Selhurst carriage repair shed: renovations, A. Bagnall & Sons, Ltd., Teddington, Middx. Battersea Pier junction: retaining wall, J. B. Edwards and Co. (Whyteleafe), Ltd., Kenley, Surrey. Lower Sydenham Poole river bridge: reconstruction, R. Robinson & Co. (Contrs.), Ltd., SW1. Oxted—Limpsfield-rd. bridge and Barrow Green-ln. bridges: reconstruction, Dorman Long (Bridge & Engineering), Ltd., Luton, Beds.

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London CC.—Additional classrooms at Alexander McLeod prim. sch., Woolwich. *Grant & Ptnrs., Ltd., 1, Manor Park-parade, Lee High-rd., Lewisham, SE13, £15,160. (This corrects information given in our issue of April 5.)

London CC.—Contracts recently placed:—Repairs, redecorations and improvements at Silverthorne county prim. sch., Camberwell. *O. H. Groves & Co., Ltd. £24,497. Design, supply, delivery and erection of structural floors at Block 1, Heath-rd. site, Wandsworth. *The Helical Bar and Engineering Co., Ltd. £16,737. Installation of central heating system and hot water supply at Daniel county sec. sch., Bethnal Green. *Steels Engineering Installations, Ltd. £11,577. Provision of housecraft accommodation at Cormont county sec. sch., Lambeth. *Grant & Ptnrs., Ltd., £10,354.

¶London (Metropolitan Police).—Internal cleaning and redecoration, West London Magistrate's Court, Goddard & Phillips, Ltd., £846. Secured accommodation, etc., Paddington police station, Websters (Builders), Ltd., £2,287.

¶London (MoW).—Contracts placed for weeks ended March 23 and 30:—

Glamorganshire: Ministry of Supply housing estate, Coryton, Cardiff, external painting of 80 houses, W. J. Brooker, Ltd., 55 Grosvenor-st., Canton, Cardiff. *Gloucestershire*: Post Office motor transport site, Lansdown-rd., Stroud, alterations, Holborrow & Sons, Ltd., Gloucester-hse., Tetbury, Gloucester. *Staffordshire*: Sub Post Office, High Green, Cannock, adaptations and alterations, A. & R. Astbury, Watling-st., Bridgtown, Cannock. *Cheshire*: Post Office, Ellesmere Port, erection of automatic telephone exchange, J. McGeoch & Sons, Ltd., Arbour-la., Kirkby Industrial Estate, Liverpool. *Inverness-shire*: Post Office, Fort William, erection of garage and workshop, Gordon Brown, Station Point, Mallaig. *Lanarkshire*: Post Office, Mason-st., Motherwell, erection of telephone exchange, H. Leggat, Ltd., Gladstone-ave., Barrhead, Glasgow; Sandfield-st., East Park, Glasgow, erection of branch Post Office, Dougall & Co., Ltd., Glasgow-rd., Dumbarton; Post Office, Castlemilk, Glasgow, erection of Croftfoot telephone exchange, J. Y. Keanie, Ltd., Floors-st., Johnstone, Renfrewshire. *Lancashire*: 141/143, Wilmslow-rd., Manchester, erection of branch Post Office, Dean & Whipp, Ltd., Clarendon-rd., Hyde, Cheshire. *Middlesex*: Telephone exchange, Palace-gdns., Enfield, extension and alterations, Galbraith Brothers, Ltd., 61, Bartholomew-close, EC1. *Nottinghamshire*: Repton, erection of new telephone exchange, W. Walkerdine, Ltd., Bridge-st., Derby. *Oxfordshire*: Automatic telephone exchange, Oakthorpe-rd., Summertown, alterations and additions, Knowles & Son (Oxford), Ltd., Holywell Works, Oxford. *Stirlingshire*: Post Office, Cameronian-st. and Goosecroft-rd., erection of telephone exchange, J. Miller & Ptnrs., Ltd., 18, George-st., Edinburgh, 2. *Sussex*: Storrington, nr. Arundel, erection of automatic telephone exchange, Y. J. Lovell & Son, Ltd., The Druids, Bishopric, Horsham. *Yorkshire*: Post Office Sorting Office, West-st., Leeds, re-instatement and repairs, W. J. Kendall & Co., South-parade, Pudsey.

¶London (War Dept.).—Works contracts placed for week ended March 29:—

Denbighshire: Building, John Hughes (Contrs.), Ltd., Wrexham. *Dorset*: Roofing, G. F. Edmonds, Dorchester. *Hampshire*: Heating, Brightside Heating & Engineering Co., Ltd., London. *Isle of Wight*: Water tanks, Horsley Bridge & Thomas Piggott, Ltd., Tipton. *Kent*: Building, Wards Construction (Medway), Ltd.,

Gillingham. *Lancashire*: Miscellaneous, Richard Parker & Son, Ltd., Garstang. *Shropshire*: Building, M. A. Boswell (Contrs.), Ltd., Wolverhampton. *Somerset*: Flooring, H. W. Pollard & Sons, Bridgwater. *Warwickshire*: Fire alarm, Barnett & Soans, Ltd., Burton-on-Trent.

Mansfield.—Eight flats and nine shops, Ladybrook-la., Ladybrook estate, for BC. BE&S: E. T. Crowe, BSc, AMICE. *Direct labour. £40,465.

Merioneth.—Prim. sch., Talsarnau, nr. Harlech. County A: Norman L. Jones (L), Dolgelley. QS: L. C. Wakeman & Ptnrs. *W. G. Jones, 29, High-st., Criccieth, £23,922.

Newcastle-on-Tyne.—Large bottling factory, to cost about £600,000, for Newcastle-on-Tyne Breweries, Ltd., Haymarket, Newcastle. *Sir Robert McAlpine & Sons, 81, Jesmond-rd., Newcastle-on-Tyne.

Northwich.—New premises at High-st., for Boots Cash Chemists, Ltd. *F. Whitehead & Sons, Ltd., Hayhurst-st., Northwich.

Nottingham.—49 flats and 5 garages at Denman-st., for TC. *Bosworth & Co. (Contractors), Ltd., Quorn-rd., Nottingham. £91,490.—New residence for women at Woodborough-rd., for TC. *John Cawley, Ltd., 151, Canal-st., Nottingham. £160,593.

Radcliffe.—Phase 1 of Bolton-rd. CP sch., for Lancs CC. *W. Fearnley & Sons, Ltd., Eccles New-rd., Manchester.

Redear.—Training centre at Wilton for Imperial Chemical Industries, Ltd. *John Laing & Sons, Dalston-rd., Carlisle.

Rochdale.—Alterations and extensions to X-ray dept. at infirmary, for Regional Hospital Board. *Septimus Taylor & Co., Ltd., Greenwood-st., Oldham.

Rotherham.—56 houses at Kimberworth Park estate, for TC. *O. Weaver & Sons, Ltd., Mexborough.

Sheffield.—First instalment of extensions to College of Art. *Henry Boot & Sons, Ltd.—Erection of Jordanthorpe sec. mod. sch. for girls, for EC. *J. E. Finnegan & Co. (Sheffield), Ltd. £181,411.—16 dwellings at Gleadlees Valley estate, for TC. *T. V. Simpson, Sheffield. £31,576.

South Shields.—Roads and sewers at Whiteleas estate (Section 2), for TC. Boro' E: John Reid. *Tarslag, Ltd., Bowesfield-la., Stockton-on-Tees, £69,490.

South Shields.—97 houses at Whiteleas site for TC. Boro' E: John Reid. *William Leech, Ltd., St. James-st., Newcastle-on-Tyne, £128,042.

Sunderland.—136 traditional houses and 10 flats at Hylton Red House estate for TC. Boro' A: H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland. ‡W. Veti (Builders), Ltd., 22, Foyle-st., Sunderland, £160,442.

Sunderland.—New Farringdon sec. mod. mixed sch. for EC. Boro' A: H. C. Bishop (A). QS: Martin & Felton, Refuge-bldgs., St. Thomas-st., Sunderland. *John Laing & Sons, Ltd., £159,587 (subject to Ministry approval).

Sunderland.—10 flats and 126 houses at Hylton Red House estate for TC. ‡W. Veti (Builders), Ltd., Sunderland, £160,442.

Urmston.—New Woodsend CP sch., for Lancs EC. ‡E. Taylor & Co., Ltd., Ebor Sawmills, Littleborough.

Wallsend.—14 houses for old people at Ordeave. estate for TC. *F. P. Dodsworth, Hillheads-rd., Whitley Bay, £16,732 (negotiated tender, subject to Ministry approval).

Westminster.—Reconstruction of Queen's Theatre, Shaftesbury-ave., W1, for Globe & Queen's Theatres, Ltd. A: Bryan Westwood (F), of Westwood, Sons and Harrison, 21, Suffolk-st., SW1, in collaboration with Sir Hugh Casson, RDI (F). QS: Messrs. Oswald E. Parratt, FRICS. *G. E. Wallis & Son, Ltd., Maidstone.

Whitley Bay.—Flats and maisonettes at The Fold for TC. Boro' E: E. Roberts. *K. R. Dodsworth, Hillheads-rd., Whitley Bay, £35,182.

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